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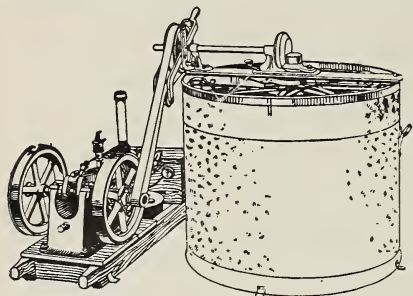
Cleanings in Bee Culture



VOL. XLII. APR. 1, 1914, NO. 7.

ROOT'S POWER EXTRACTORS

for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "BUSY BEE," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.



The A. I. Root Co., Medina, Ohio

SEASONABLE "falcon" Bee Supplies

HIVES—What better chance have you to get your "falcon" hives nailed than just now? Now's the time to place your order for some "falcon" hives. Make use of your spare time by nailing your hives and frames.

SECTIONS—Sections ordered at this time can be folded before the season begins, and you are that much more ahead, which means money in your pocket.

FOUNDATION—This is an excellent time to order foundation and to put it into sections and frames, now when you have the spare time, thus preparing you to go into the season with a good start. Here's what Mr. J. J. Wilder, Cordele, Ga., says about our foundation: "Your foundation is the best I ever bought, and I am more than pleased with it." Mr. Wilder is one of the largest beekeepers in the country.

SUPERS—Supers can be nailed and painted, and filled with sections and starters, by ordering your requirements now. You can not afford to be without supers when the rush comes. Get your order in for "falcon" supers now before the swarming season begins.

Send for our foundation samples and new Red Catalog, postpaid.

Dealers

Everywhere:

New England States, Ross Bros. Co., 90 Front Street, Worcester, Mass.
Central States, The Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.
Western States, C. C. Clemons Bee Supply Co., 128 Grand Ave., Kansas City, Mo.
Southern States, J. J. Wilder, Cordele, Ga., and many others here and abroad.

W. T. Falconer Manufacturing Company, Falconer, New York

Where the good beehives come from

"ROOT" "PEIRCE" "ZANESVILLE"

Three words that unlock the possibilities of successful beekeeping.

"ROOT QUALITY" has always represented the acme of perfection in every thing pertaining to bees.

"PEIRCE SERVICE" is fast becoming a synonym for promptness coupled with courtesy and fairness.

ZANESVILLE the metropolis of eastern and southern Ohio—is the logical distributing-point for the beekeepers of Ohio, West Virginia, and western Pennsylvania; and those more remote can be served with a large degree of satisfaction on account of the superior shipping facilities of this city.

Our 1914 Catalog of Beekeepers' Supplies and Introduction to Beekeeping is now being sent to those on our mailing-list. If you have not already received or do not receive it soon, a postal-card request will insure your receiving it without delay.

Prospects for the coming season are unusually bright, and both prudence and economy would suggest the early placing of your order.

E. W. Peirce, Zanesville, O.

Airdome Bldg., South Sixth St.

It turns over an important "new leaf" beginning with the January number.

The Guide to Nature

Several New Features

"Birds in the Bush," a department edited by Edmund J. Sawyer, with illustrations from original drawings by this talented artist-ornithologist.

"The Fun of Seeing Things," a department for young folks, edited by Edward F. Bigelow, succeeding his well-known work as editor of the "Nature and Science" department of "St. Nicholas" for more than fourteen years.

This new department will be really new. It will not be "schooly," not "nature study," not to induce parents and educators to say, "It is good for the children," but it will appeal directly to the young folks themselves and will help them to enjoy the natural objects that surround them. It will be true to its name.

Subscription \$1.00 a year; single copy 10c.
To new subscribers, four months trial for 25c. Address (and make check or money order payable to)

The Agassiz Association,

ARCADIA:

Sound Beach, Connecticut

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29 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

LEAHY MFG. CO., . 95 Sixth St., . Higginsville, Missouri



HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING RULES Adopted at Cincinnati, Feb. 13, 1913.

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

I. FINISH:

1. *Extra Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row.

3. *No. 1*.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2*.—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

II. COLOR:

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

III. WEIGHT:

1. *Heavy*.—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium*.—No section designated as medium to weigh less than twelve ounces.

3. *Light*.—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight. As for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

CULL HONEY:

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

No. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

No. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

BOSTON.—We quote fancy and No. 1 white comb honey at 15 to 16; fancy white extracted honey in 60-lb. cans, 11. Beeswax, 30.

Boston, March 19.

BLAKE-LEE CO.

ALBANY.—We have almost no honey market to report. Our stock of comb honey is exhausted, and the demand for extracted is so nominal we can scarcely quote price. We don't refuse any offers, as there is so much extracted honey that some will have to be carried over the year, we fear.

Albany, March 20.

H. R. WRIGHT.

Honey reports continued on page 5.

**JUST
OUT!**

New 1914 Catalog--"Everything for Bees"

Lay your plans for the new season now. Send for the 1914 Muth Catalog of Beekeepers' Supplies. It's just off the press. In it you will find full information about the remarkable MUTH SPECIAL Dovetailed Hives. Drop a postal card at once—sure!

THE FRED W. MUTH CO.

204 WALNUT STREET

"The Busy Bee Men"

CINCINNATI, OHIO

P. S.—Ship us your old combs and cappings and let us render them for you. Our process extracts the last drop of wax from the slumgum. This means money for you. Write for full particulars.

SPECIAL DELIVERY

During this month we shall double our usual efforts in points of delivery and service. We carry nothing but the Root make, which insures the best quality of every thing. We sell at factory prices, thereby insuring a uniform rate to every one. The saving on transportation charges from Cincinnati to points south of us will mean quite an item to beekeepers in this territory. We are so located that we can make immediate shipment of any order the day it is received.

New 64-page Catalog

Our new 1914 catalog contains double the pages of former editions and requires extra postage. It is filled from cover to cover with complete lists of goods in every line to meet every requirement of beekeepers. If you haven't received a copy when you read this, be sure to ask for one. It will save you money.

New Features for 1914

Few radical changes have been made this season. It should be noted, however, that we will send out with regular hives, unless otherwise ordered, the metal telescopic or R cover with super cover underneath. The side rail for the bottom-board will be extra length so as to overcome the difficulty experienced by some last season. Improvements have been made in extractors. We shall carry a very heavy stock so that orders may be filled with our usual promptness. Write us your needs.

C. H. W. Weber & Co.

2146 Central Avenue

Cincinnati, Ohio

Gleanings in Bee Culture

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A. I. ROOT

Editor Home Dep't.

H. H. ROOT

Ass't Editor

J. T. CALVERT

Business Mgr.

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\$1.00 per year. When paid in advance: 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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Honey reports continued from page 2.

BUFFALO.—Since our last report the demand for white comb honey has improved. It looks as though it would continue in better demand. No improvement in other grades.

Buffalo, March 18.

W. C. TOWNSEND.

INDIANAPOLIS.—Fancy white comb is being offered here at 16 to 17 cents per pound; amber comb, 14 to 15; white-clover extracted, 9 to 10 in 5-gallon cans. Much comb honey is being held here; but at this writing there is very little demand. Extracted is in fair demand. Producers are being paid 32 cents cash for beeswax, or 31 in trade.

Indianapolis, March 18. WALTER S. POWDER.

KANSAS CITY.—The supply of comb honey is still large, demand fair. The supply of extracted is moderate, demand fair. We quote No. 1 white comb 24 sections per case, \$3.75 to \$3.85; No. 2 ditto, \$2.50 to \$2.60; white extracted, per pound, 8 to 9½; dark and amber, 7 to 7½. Beeswax, 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, March 18.

LIVERPOOL.—The beeswax market is without supplies of Chilian, for which the value to-day is \$38.88 to \$43.74 per cwt. as to quality. Fourteen bags have arrived per steamship Kenuta. For Chilian honey the market is very dull, and easier. Sales 95 barrels, principally no pile, or unselected, at \$4.80, with retails of pile 3 at \$6.00.

Liverpool, March 4.

TAYLOR & CO.

ZANESVILLE.—The demand for honey, while not brisk, is not far from normal for the season, there being some call for best quality of comb. We quote No. 1 to fancy white at 16½ to 18½ in a jobbing way; 18 to 20 wholesale. Best white extracted in 60-lb. cans, 9 to 10. These quotations are for white clover. Western honeys rule about a cent less. The price of beeswax remains arbitrary. At present producers would receive 32 to 33 cts. cash, 34 to 35 in exchange for supplies.

Zanesville, March 17. EDMUND W. PEIRCE.

CHICAGO.—The cold weather of February helped the sale of honey, especially that of comb, so that the market is now practically cleaned up on all grades of comb honey—a situation which, sixty days ago, was quite unlooked for. Fancy grades are selling at from 14 to 15 cts. per lb.; the of grades are also finding a market, with very little being offered. Prices range from 8 to 13. Extracted is weak with the best white clover and basswood bringing from 8 to 9, with other white grades from 7 to 8. The demand for beeswax has been very active, and brings from 33 to 35, according to color and cleanliness.

Chicago, March 18.

R. A. BURNETT CO.

NEW YORK.—We have nothing new to report. While there is as yet some demand for fancy and No. 1 white comb honey, it does not count for much, and other grades which were shipped to us late in the season, when the demand was pretty well over, are practically unsalable, and we have several lots in stock which we would rather not have had sent to us all. If it had been shipped early we could have disposed of it; but now we have it on our hands, and would rather not have received it at all. Extracted honey is very quiet. There is some demand for strictly fancy white clover, while other grades are neglected. Prices remain about the same as in our last quotations.

New York, Mar. 20. HILDRETH & SEGELKEN.

ST. LOUIS.—Our honey market is not very active, but about normal for this season of the year. Prices are about the same as quoted in our last letter. Light-amber extracted honey is more in demand, and stocks of this honey are lighter here than comb honey. Southern extracted and strained light amber in barrels we are quoting in a jobbing way from 6½ to 7; in 5-gallon cans, 7 to 7½; dark, ½ to 1 ct. less; comb honey, fancy clover, 14 to 15; light amber, 12 to 14; amber, 10 to 12; dark and inferior, less. By the case, fancy clover, \$3.00 to \$3.25; light amber, \$2.50 to \$3.00; amber, \$2.00 to \$2.25. Beeswax is scarce, and firm at 33½. Impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, March 21.

Deposit your Savings with The SAVINGS DEPOSIT BANK CO. of MEDINA, O. The Bank that pays 4%

Write for Information

ATSPITZER PRESIDENT	E. R. ROOT VICE-PRESIDENT	E. B. SPITZER CASHIER
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CULL & WILLIAMS CO.
Providence, R. I.

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(Signed) J. T. CALVERT.

Sworn to and subscribed before me this 11th day of March, 1914.

[SEAL.]

(Signed) FRANK SPELLMAN.

(My commission expires Feb. 17, 1917.)

DENVER.—Our local market is still well supplied with honey, and our jobbing quotations are as follows: Strictly No. 1 white, per case of 24 sections, \$2.70; choice, \$2.57; No. 2, \$2.43; extracted, white, 8 to 9 cts.; light amber, 7 to 7½. We are in the market for beeswax, and pay 32 cts. cash per pound and 34 in trade, delivered here.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
FRANK RAUCHFUSS, Mgr.

CINCINNATI.—The demand for honey is somewhat improved from what it was 30 days ago. The stocks are heavy, and we hardly think the prices for next season will be as stiff as last. We continue to sell our fancy comb honey in the wholesale way at \$3.75 a case delivered; extracted table honey from 7½ to 10; amber extracted from 5½ to 6½ and 7, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying 32 cts. per lb., delivered here, and 34 in trade for supplies.

THE FRED W. MUTH CO.

Cincinnati, March 18.

Gleanings in Bee Culture

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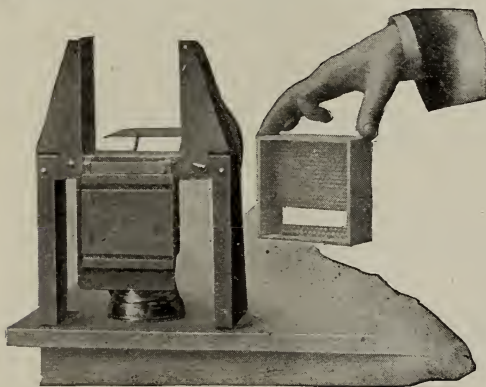
the all-important tool of the most extensive honey producers of the world. This illustration shows the remarkable steel fire-grate which such men as Mr. France, Mr. Rauchfuss, the Dadants, and others say is the best on the market. . The Smoke Engine grate has 381 holes for air and draft—equal to an opening two inches square. Buy the large sizes and be pleased. For sale at your dealers or direct.

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 Little Wonder, 2½-inch stove, wt. 1 lb., . . .50
 Two largest sizes with hinged cover.

A. G. WOODMAN CO.
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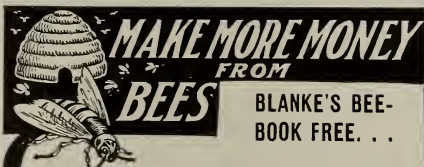
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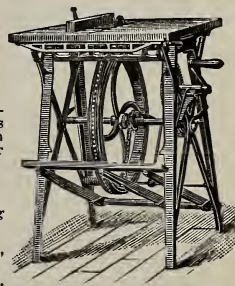
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H. H. Root, Assistant Editor.

E. R. Root, Editor.

A. L. BOYDEN, Advertising Manager.

A. I. Root, Editor Home Department.

J. T. CALVERT, Business Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII.

APRIL 1, 1914

NO. 7

Editorial

EDITION OF "THE HONEY-BEE" EXHAUSTED.

We have just learned from Mr. W. D. Wright that the edition of six thousand copies of Bulletin 49, entitled "The Honey-bee," published by the New York State Department of Agriculture, is entirely exhausted, and can not be supplied hereafter. Mr. Wright adds, however, that some time in the future a new edition may be issued. If so, due notice will be given at that time.

WINTERING REPORTS.

ON account of the late spring, it is still too early (March 23) to get reports on wintering. It is certain that colonies in cellars are having an extra-long siege, very few having been taken out at this writing. With the warm weather delayed so long, colonies that were not strong in the fall, or that were not supplied with an abundance of good stores, are certain to suffer.

Advance reports from New Jersey, Michigan, Massachusetts, Colorado, Wisconsin, Iowa, and New York show but little loss.

Considerable loss has been reported in certain parts of Kentucky where the weather has been extremely changeable. Further particulars will be given in our next issue.

OUR COVER PICTURE.

THE bees shown on the cover of this issue were photographed last fall from life, or, rather, from death, for the bees were kept under water over night, then carefully dried, and brushed with camel's-hair brushes until they assumed as near as possible the appearance of live bees.

We realize that these pictures are far from perfect—for instance, the drone selected appears to be a trifle undersized in respect to length of abdomen. There are several other defects having to do with the arrangement of the legs, wings, etc., all of which we hope to rectify some time when we photograph bees again.

The original queen was just three-quarters of an inch long from tip of abdomen to tip of head. The larger view on the cover is $2\frac{3}{4}$ inches in length, so that the amount of enlargement of the bees in the

center of the page is in the proportion of three to eleven; or, in other words, the pictures are nearly four times life size. The side views shown below are of the same bees enlarged only a trifle over two times.

THE CHARACTER OF THE MATERIAL USED IN THIS SPECIAL NUMBER.

SOME, after reading the various articles by the queen-breeders in this special number on breeding, may feel that certain articles savor of advertising. In justice to all we should like to explain that it would hardly be possible to publish a special number of this kind without using the best ideas from some of our breeders. Some of these breeders, feeling that their remarks might be construed as an attempt at getting some free advertising, have suggested that their names be not used, but that a *nom de plume* be substituted. On reading over this array of splendid material, we have decided that the articles would lose considerable in interest if the names of the writers were not known, and we thought best to treat all alike, therefore, by publishing the names and addresses as usual. We are convinced that not one of the writers in this issue has tried to advertise his own particular queens, or those of any other breeder.

BEFORE YOU CONDEMN A QUEEN, BE SURE THAT THE QUEEN IS TO BLAME.

FREQUENTLY colonies are so situated that the bees naturally drift to other hives near by, which are either more prominent or else there are more bees going in and out, which causes the bees of the hive in question to be naturally drawn toward the scene of greater excitement. During a brisk honey-flow, moreover, heavily laden bees falling in the grass are apt to crawl into the first hive they come to, where they are welcomed, of course, because of their load of honey. Under such conditions, especially when the hives are located in groups, one or more hives in the group may suffer by the depletion in bees because they are located on the side away from the main source of honey, or on the side away from the natural line

of flight from the apiary. This causes such a poor showing that the queen is likely to be blamed, when in reality she may be doing as well as any queen could under the circumstances.

Our Mr. George H. Rea tells of moving his weak colonies in the spring to the side of the apiary nearest the natural line of flight in order to get them strengthened by many returning bees which, coming back from the field (some of them at least), go into the nearest hive.

Sometimes a hive is located in an unfortunate position through the winter which causes an unusual mortality of the workers. In the spring the queen works at a disadvantage, having a much smaller colony to support her. It is not safe to condemn such a queen in the spring without giving her a chance to show what she can do under favorable conditions.

LONGEVITY A VERY IMPORTANT FACTOR.

Several of the writers in this number touch on the subject of longevity of the workers. Our Mr. Geo. H. Rea, referring especially to Dr. Miller's Straw, p. 205, March 15, submits the following:

It is generally agreed by beekeepers everywhere that colonies strong in bees at all seasons of the year are most desirable, and give best results in the honey-flows. In spite of this fact it is often observed that some colonies very strong in bees do not produce nearly as much honey as other colonies in the same yard that are apparently not nearly as strong. Several conditions may enter into this, but it is not my purpose to discuss them, only in so far as the question of longevity enters into it.

The subject may be divided into three propositions: 1. A good queen may easily lay sufficient eggs to build up rapidly and keep a colony strong; but the bees produced may be a little below the average in length of life, and the working force may die off so rapidly that the surplus honey gathered falls far below the average. Strong in young bees but weak in field force will, I believe, explain the reason for such strong colonies that produce but a small surplus. Such colonies are usually great swarmers.

2. A colony of average strength may produce good results, because the bees live a little over the average, and such a colony will really be strong in working force while only fair in young bees.

3. A colony may be of average strength, and produce an average crop of honey because the death rate may equal the rate of increase, thus striking a balance.

Now, you scientific queen-breeders, get your thinking-caps on. How about the very prolific queens that produce a long-lived working force? It is my opinion that they are the ones that produce the big honey crops, and at the same time the swarming average is low. While this theory may be entirely wrong, yet the conditions exist just the same. I have made this a subject of careful observation for years in my own apiary as well as those of other beekeepers. My duties as inspector of apiaries for the State of Pennsylvania took me into several hundred apiaries last summer, and the remark was frequently made by the beekeeper that certain colonies, perhaps the strongest in the yard, seemed to do very little. Investigation of such cases

proved to my satisfaction that the force consisted largely of bees too young to work in the field. Where was the older force? Only one answer, it seems to me.

It is also a matter of observation that both our second and third propositions are true. If this theory is correct, then there are bees that excel in length of working days, while others die comparatively young. But now some fellow will jump to his feet and try to spoil all this pretty theory by stating that a bee's life is only as long as its wings will last. Even so, may not the hardy bee with strong flight have wings that will outwear those of the less vigorous? This argument will only strengthen the theory of a longer fielding period.

This may sound like foolishness to our scientific men; but the conditions that I have mentioned stand, nevertheless, and I for one would like to know positively the reason for them. For a number of years I have been of the opinion that this matter of longevity is of prime importance; in fact, I will have the temerity to state that I believe it to be the most important factor in beekeeping—more important to the honey-producer than races of bees, color, or length of tongue. I am inclined to think that many beekeepers of this country believe in this same theory. Why not work it out?

AN OPEN LETTER FROM E. R. R. IN THE FIELD;

CONDITIONS IN SOUTHEAST FLORIDA.

AFTER spending three weeks on the West Coast in the vicinity of Bradentown I made my way to the East Coast, particularly the southern portion, which I had never visited. The West Coasters claim that they have the better side—better farming land and fewer mosquitos and sandflies; that the East Coast has been overboomed by the real-estate agents. While I had previously visited the upper part of the east side I was curious to know if the indictment of the West Siders were true. After having visited both sides I am reminded of the kettle calling the pot black. In many respects there is no difference. There are the same real-estate agents, good and bad; the same kind of land, good and bad, and the same kind of mosquitos, sandflies, and bugs, all teetotally bad; but, fortunately, they are not bad all the time and in all places. If one buys land near swamps or stagnant water he must expect mosquitos in warm or hot weather; but even then their depredations can be very largely mitigated by screens; and during the middle hours of the day they are not troublesome outdoors in the cities and towns, either on the East or West Coast.

After having visited practically the whole of Florida I have come to the conclusion that there is no county that has more good land capable of growing oranges and garden truck than Manatee Co., on the West Coast. I might make an exception in favor of the Everglades; but this section is as yet an unknown quantity. There are some long narrow stretches of good garden land along the canals and rivers on the southeast coast. Of these I shall speak later.

BEES AND GOOD LAND.

But you say, "What has all this garden-truck land to do with beekeeping?" Very much. Bees will not thrive where the soil is poor. Mark that down strong. For example, the saw or scrub palmetto, one of the principal sources of nectar in the State, will not yield honey of any account on poor land. In order to make the keeping of bees profitable, the saw palmetto should be three, four, and (better) six feet high. Land that will grow it as high as that will also grow the gallberry and the pennyroyal; and in some sections near the streams the black mangrove, the ty-ty, and the tupelo. Locations that will not show a vigorous and a heavy undergrowth should be avoided.

OUR CRUISER TRIP DOWN THE EAST COAST.

Mr. W. A. Selser, who spends his winters at Stuart, Fla., engaged for our party a 40-foot gasoline-cruiser so that we might the better study beekeeping conditions from Stuart to Miami. I will not at this time go into details of the big fish we did or *didn't* catch; of the places where I stopped and took notes and snapped the kodak, as these will be given in these columns later with the pictures. Mr. O. O. Poppleton, the most extensive and successful migratory beekeeper this country has ever known, was our guide for a part of the distance. What he doesn't know about this most southerly bee territory in the United States is not worth recording. I had an exceptional opportunity to interview him and others along the route, and, more important, stop our boat and see the territory under consideration.

Another member of our party was Charlie Repp, of the famous Repp Bros., the great apple-growers of New Jersey. The Repp boys are authorities on the relation of bees to apple-growing from the standpoint of the fruit-grower. Of course, I interviewed Charlie, and, as the newspaper man would say, he gave me some "good dope" that I shall give to our readers. I say "Charlie," for that exactly expresses the kind of genial good fellow that he is. Then we had Mr. Selser and wife and Mr. Gray and wife; and last, but not least, captain (the owner of the boat and a friend of Mr. Selser), Dr. F. S. Slifer, of Philadelphia. He is not only a physician of standing, but somewhat of a naturalist, although he might demur at the last-mentioned title. Mr. Gray and wife were old college mates, and Mr. Selser and wife, of course, need no introduction. To say that the trip was enjoyable is putting it mildly.

As a preliminary statement to what I shall say later concerning this trip I may add that Southern Florida is not a paradise

for bees. While a comfortable living can be made, it has come to be largely a matter of the survival of the fittest. Only the "stayers" are in the field now. Some think they would have made more money north with their bees; but they had to move South for the climate, which Florida surely has, whatever we may say about the land.

OUR BEES IN APALACHICOLA, FLORIDA.

The cold weather in the North, with the spells of frost and freezing in Florida, even as far south as Palm Beach and Miami, made me fear what might happen to the success of our experiment in making increase from our 300 colonies on the river. When I saw how the tomato-plants by the acre had been frosted down in Southern Florida, and read of the freezing weather in the northern part of the State, I began to wonder if the cold would not kill off the ty-ty and the willow, upon which we were depending for our pollen and nectar for early breeding. If breeding at this stage should be stopped it might practically put a quietus on the whole proposition. Late letters from our Mr. Marchant in charge showed that, while hopeful, he was not sure that he would escape trouble.

It was with some trepidation that I took the train northward after leaving the cruiser. I scarcely dared ask Mr. Marchant, on arriving at Apalachicola, what he knew. Greatly to my relief he met me with a reassuring smile. "We are going to get there yet. The cold—yes, it has put us back; but the bees are busy on the willows, and have just begun on the black tupelo. The cold weather has held back the black tupelo so that it will come more gradually."

This will build up our colonies better than if the flow were faster. Mr. Marchant thinks the black tupelo will last two or three weeks. This will be followed soon by *white* tupelo, which is the main source for honey here. Yesterday I visited the yard and found about 100 colonies with upper stories, and queens in both; and there are many more that will soon need upper stories. All conditions so far, in spite of the previous bad weather, point to a good yield from both tupelos. It is not wise to count our chickens before they hatch; but we feel that the venture is going to be a success after all.

There is one thing I did not count on; and that was that a freeze in Northern Florida does not begin to do the damage that a frost does in the southern part of the State. It transpires, then, that, beyond the loss of time when the Apalachicola bees could not fly to gather pollen or nectar, little damage was done.

Apalachicola, March 17. E. R. Root.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

SPEAKING of the best time to cut bee-trees, if the bees are what you are after, cut in fruit-bloom; if you care only for the honey, cut in fall—the earlier the better after the flow is over.

"THERE is no doubt that the Italian bee does not excel as a 'comb-honey' bee," says L. S. Cranshaw, *British Bee Journal*, 79. They don't do so bad for me, L. S. One colony of three-handers last year gave me 390 sections—nice sections too.

G. M. DOOLITTLE says, p. 167, it's better to bring bees out of the cellar a little before soft maples bloom. "In this locality" I never yet thought soft-maple bloom too late for bringing out bees; but once or more I have thought it too early. Still, I may be wrong.

If you want to provide a watering-place for bees so as to keep them from being troublesome at pumps, watering-places for horses, etc., be sure to do it *early*, before any habit is formed. After they have once started at the wrong place it's almost impossible to change them.

YOUNG FELLOW, let me hand you a piece of advice that will be worth dollars to you if you follow it. Lay your plans right now to keep close tab on every pound of honey each colony stores this season. Then you'll know which to breed from, and which queens to replace because poor.

JOHN E. ROEBLING, p. 232, pardon me, but I don't believe that your clipping queens in late spring has a thing to do with prevention of swarming. For many years I've clipped at that time all queens I could find with whole wings, and so far as I observed they swarmed as much as those clipped at other times.

THE question is asked, p. 232, whether "heavy nurse bees" in a removed colony would "train down and become field bees or remain nurse bees to the end." There is such a thing as bees continuing nurse bees beyond the usual time, but only where there is a scarcity of young bees. In the case in question, some of the nurses would become field bees in 24 hours, some in 2 days, 3 days, and so on, until at the end of about 16 days all would be fielders.

C. S. NEWSOM, p. 181, says, "The bees that cluster on the outside of the hive are mostly young ones hardly able to fly." and ye editor says, "The cluster outside may be composed of field bees largely." Those two

views are a long way apart. Some of you wide-awake young chaps watch next summer, and tell us which is right, or whether the truth lies between. [What we intended to imply was merely that the bees clustering out may be old bees or young bees, or bees of mixed ages.—Ed.]

HASN'T "The Outlaw" struck on a rather original way of getting wax, p. 223? At any rate, it looks good. I know it's the case in my supers that, when a section is not entirely filled with worker foundation, the bees are about sure to fill the vacancy with drone-comb, and I'm likely to find that drone-comb held open for the queen to lay in. Allow no drone-comb in the brood-chamber, and use a queen-excluder, and there ought to be a fair chance for the finest virgin drone-comb.

REPLYING to your question, p. 205, Mr. Editor, I mean that European foul brood is a blessing in the way of eliminating the careless, haphazard beekeeper. As to the other part, I don't care to say much, for I believe it to be to the interest of beekeepers in general to introduce best Italian blood to help fight European foul brood. Nevertheless, I must say that in my own apiary I am not sure there is any distinction between darkest and lightest bees. My bees are now mostly Italians, but European foul brood has not made them so.

I WISH George M. Huntington had given us fuller particulars, p. 215. He says by time of alfalfa bloom strong colonies have the queen crowded for room in the brood-chamber; but he doesn't say whether supers are on or not. Unless his bees do differently from mine there will be no crowding of the brood-chamber with supers on. If no supers are on at this early time, and the brood-chamber is clogged, then extracting will give the queen room. Later, when the full flow is on, I have given empty combs, only to have them promptly filled with honey. When Alexander talks about extracting in May or early June the supers are not yet on, and then clogging with honey is fatal to best results. Answering the question whether extracting two or three frames from the brood-chamber would stop work in the supers I would say that *early* it will interfere not at all; later, in the full flow, as I have said, the emptied combs will be filled with honey, and, of course, that would interfere with super-work, at least temporarily, for later it may be that the brood will crowd out the honey.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

March 10—no rain since Feb. 21; surface getting dry; weather very warm; oranges blooming, and sage in places showing much bloom.

* * *

Never in all my experience have I seen so much pollen stored as now. Many of my colonies have two full combs at the present time.

* * *

Hived my first swarm to-day, which is the earliest I have ever had the pleasure of capturing a stray. The colony from which it came must have been an exceptionally early breeder.

* * *

The recent heavy rains brought to most of us only joy; but some of our beemen lost heavily of hives and fixtures. In the aggregate several hundred colonies were washed away, and I should not be surprised if the entire loss would run into figures of more than a thousand, if all were reported. M. H. Mendleson and J. D. Bixby were the heaviest losers of full colonies. Mr. Bixby lost 125, Mr. Mendleson something like 100.

* * *

I wish to announce that I am no longer connected with the exhibit committee of the State Association. I am also informed that chairman M. H. Mendleson, of the committee, has decided to withdraw. It is with much regret that I announce my resignation; but opposition to our plans, working privately, as well as through the *Western Honey Bee*, has forced me to the conclusion that with such opposition our efforts could not overcome the prejudice engendered.

* * *

There are some peculiar features in connection with our semi-desert plants. One of these in particular I noticed the past year. Much of the wild alfalfa was killed during our freeze in January, 1913. There was very little of it in this locality that ever showed a green leaf during the entire spring and summer of that year, though many of the stocks seemed to contain life. Our recent heavy rains and warm sunshine have caused fully half of it to revive with the most luxurious growth I have ever seen.

* * *

Mr. J. T. Bowen, page 152, takes another "stab" at my opinion on the color of alfalfa honey. I wish to say to Mr. Bowen as well as to all others who have written regarding the matter, that I am studying this

question of the color of honey; and while I may be wrong, it must be proven to me that I am. I know the tendency of the average beekeeper to judge the source from which his honey-flow comes far too well to back down on this proposition simply because I am opposed. We have the same contention about sage and other honeys in my locality that I consider as having been arrived at by immature observation.

* * *

We are face to face with the earliest season for years. Our winter has been a most unusual one in many respects. We have seen very little trace of frost during the entire winter, our rains have fallen in great storms covering a period of a week to ten days with very heavy precipitation, after which the sky clears and the warm weather continues. The oranges are beginning to bloom abundantly, and within two weeks will be in full bloom if the warm weather continues. The sage is from four to five weeks earlier in this locality than usual. I have never seen bees build up so rapidly from a small start as has been the case this season. They have come by leaps and bounds; but for all their speed they are yet behind the season. I am informed that things are not quite so advanced near the coast.

* * *

GREAT LOSS OF BEES IN THE PAST YEAR.

The loss of bees during the past twelve months has been quite heavy in many sections, while other parts have fared better in this respect. The chief trouble in this section has been the lack of stores; in other places it has been black brood. In this connection I quote from a letter of F. C. Wiggins, of San Diego:

The beemen that I know hereabout all report great losses of bees owing to some disease, the same as destroyed nearly all of my own in 1907 and '8, I think. The hives would be found empty of bees with plenty of honey. One of my neighbors has a bee-ranch at Dulsura, and he has only 41 colonies left out of 120 last summer. Another in the same section lost all but one out of 50 colonies. Mr. G. F. Hedy, of Linda Vista, said he thought he would not save over ten or fifteen per cent of two apiaries of about 300 colonies. A few that I have at present all came through, and are getting honey from some sources so fast that I put on comb supers yesterday.

Conditions seem to be a great deal as they were in the spring of 1905, so far as the loss of bees is concerned; and if we should obtain a heavy yield the loss of bees would prevent a very great overproduction at best.

Notes from Canada

J. L. BYER, Mt. Joy, Ontario.

Are you joking, Dr. Miller, when you say that "on this side it is a rarity for bees to work on the second crop of red clover"? page 125. Nothing rare about it here in Ontario, as, on the contrary, it would be a rare thing indeed to find a field of second-crop red clover without *some* bees being on the blossoms. But it is a rare thing to find them doing enough to show any results in the supers. Only two or three times since I have been keeping bees has this happened.

* * *

The March 1st issue is practically a "city number," and this leads me to remark that the average country beekeeper has no idea of the number of colonies kept in some of our large cities. Toronto, right near me, with a population of over half a million, has a great number of bees inside its limits, as I learned when doing inspection work a few years ago. From the standpoint of disease, our city brethren have more to contend with than we have, as there may be bees within a short distance, and yet they may know nothing about it. This is not insinuating that the city beekeeper is necessarily not as well informed on the disease question as his country brother, for, on the contrary, I know many of them who are up to date, and hustlers in every sense of the word. But *one* beekeeper exposing foul brood in the city may do much more harm than if he were in the country, for the simple reason that very few may know that he has bees, and damage may be done to neighboring apiaries while the proprietors have no idea of the source of infection.

* * *

Under date of Feb. 10 I wrote that winter here in this part of Ontario had been above the average in temperature. An old saying is that "it is never safe to whistle till you are out of the bush," and it holds good in the present instance. Since that date we have had a whole winter's cold in a month, as for three weeks in February the weather broke all records for our locality. At our home here in York Co. the thermometer said 30 below on two different occasions, and for two weeks at a stretch it was never above zero in the morning. At the yard-100 miles north of Toronto, where over 300 colonies are wintering outdoors, it was very much colder than here in York Co. Three days in succession it was 43, 37, and 33

below respectively; and for the whole month of February only five mornings registered above zero. Results there will answer the many who live further north than I do, who, the past fall, asked me if I considered wintering outdoors would be safe for them to practice. No report has come from this north yard for the past three weeks; but I am not worrying much about the bees, for all that; for, notwithstanding the unusual cold, I am not expecting a heavy loss. The bees up there had a partial flight Nov. 23, and as it is cold to-day (March 9) it looks as though they will have had a steady confinement of four months at least before getting a chance to fly again.

* * *

PAINTING PAYS.

Regarding the matter of painting hives, as discussed by friend Doolittle on p. 842, Dec. 1, I might say that his claims as to *economy* of painting being a "myth" don't appeal to me a bit. I am not prepared to argue the question from the sanitary standpoint as applied to the health of the bees in painted or unpainted hives; but, honestly, I have no fear of the painted hives doing my bees any injury. But as to paint being a wood preservative, it seems absurd to me to try to prove otherwise. The oil in the paint is the main thing; and it takes little experimenting to prove that oil-soaked wood will not soak up water like unpainted wood; and moisture in the material is the main cause of decay, as I understand the matter. Great corporations like our big railway companies, etc., certainly think that paint pays from an economic standpoint; and business interests of that nature seldom make mistakes of that kind. While I have a few hundred painted hives I also have a few hundred unpainted ones, so the above is written from an unbiased position. The unpainted hives always give me a feeling of reproach whenever I look at them, as I feel they are not a paying proposition, to say nothing of other disadvantages they may have. We have double-walled hives sheeted on the outside with half-inch stuff that were made over 30 years ago. They were well painted at that time by my grandfather, and are to-day in fair condition. Others, made about 15 years ago, and not painted, have the sheeting all curled up and split at the ends in many cases. Certainly painting would have paid in this case.

Beekkeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

BOTH SIDES OF THE SPRAYING QUESTION.

Yes, we have it in our Colorado law that spraying fruit-trees while in full bloom is a violation. It is this way: The clause dealing with the subject is inserted in the law relating to bee-diseases, otherwise known as our foul-brood law. A number of years ago a clause with the same substance was inserted in the horticultural law, and remained on the statute-books for several years, and did a great deal of good. Then when the horticulturists wanted a new law they drew up a bill and thoughtlessly left out the clause regarding spraying. This is only natural, for the fruitmen could hardly be expected to have the bees in mind all of the time. Perhaps the thoughtlessness was on the part of the beemen in allowing the subject to be passed over in that manner. But that is what happened, and the majority of Colorado beemen went blissfully on nursing the belief that they had protection from spraying in fruit-bloom.

A fruit-grower who has a large orchard, to get over it all in time, has to begin the spraying at the earliest date so that results may be secured. Suppose he begins when the petals have just begun to fall—what will be the result? There are many bees in the trees working on the blossoms. Suppose he does kill most of the fruit by his spraying that is not yet fertilized. There is generally enough already fertilized to furnish a crop, and the work of thinning will not be so hard. This is an argument often made by intelligent fruit-growers—men who keep bees of their own, too; and some of them have knowingly poisoned their own bees, saying that it is better for them to buy bees every year and bring them in to be in turn poisoned than to delay the spraying. There are so many belated blossoms that some bees will be killed any way.

Different spraying methods and materials are continually being tried, and new pests of the orchards are appearing, so that the lot of the beeman is a hard one in a commercial-orchard district. My candid opinion is that the beeman had better keep out of the commercial-orchard districts. At Canon City two years ago the leaf-roller threatened the orchards, and spraying was recommended and done throughout the blooming period. It killed bees in large quantities, and did no good to speak of in control of the rollers. But another method of control has been found to be sure, so that the beeman need fear nothing from leaf-roller spraying.

The recommendations of horticultural authorities are generally to begin spraying for the codling moth when two-thirds of the petals have fallen. If this is followed, will not a good many bees be killed? And then how many fruit-growers can tell when any proportion of the petals have fallen?

Another trouble from spraying comes when the later summer and fall sprayings are applied to kill the later hatches of the codling-moth worm. Cover cropping is now quite generally done—alfalfa, sweet clover, alsike, and white and red clover being used. The bees working on the bloom under the apple-trees that have been sprayed sip the poisoned nectar from the blossoms, carry it home, and poison the brood and young hatched bees in the hive. New swarms hived in July have perished in two weeks, and many desert their hive precipitately.

In some sections of the fruit-growing West the belief still is held by some prominent fruitmen that bees are at least partly responsible for the spread of pear-blight. Some hold to the proposition that, if the bees were all moved out of a district, the spread of pear-blight could be controlled. The sentiment is strong enough in some places to attempt this if it were not for the difficulty of getting rid of the wild bees and also the difficulty of persuading the beemen of the truth of the proposition. I rather think that the fruitmen are not all of one mind on this question in any place.

A law to control the spraying of fruit-trees during blooming time is a hard one to enforce. It is a potent factor in the more pronounced cases, and I am in favor of a law; but a frank recognition of the difficulties, and a campaign of education by the beemen, will do much good in getting the fruitmen to follow the spirit of the law.

The beeman is safe enough if he is located in an orchard country where little spraying is done, as then the nectar from fruit-bloom will be a fine stimulant to the bees; but when the arsenate of lead comes along with the blooming of the trees he must look out. He may have nine neighbors who will follow the rules closely enough so that they will do no damage; and one neighbor by spraying a few days too soon will undo it all. And if the beeman is busy, he may never find out who that neighbor is. If he can find out in time, it can be stopped if there is a law in the State; but suppose the one man can't be found till after the damage is done. The average man pockets his loss, and does nothing.

Conversations with Doolittle

At Borodino, New York.

A BIT OF HISTORY.

"Do you practice line breeding, or do you breed by getting in new stock from other yards?"

A quarter of a century ago, instead of "line breeding" the term would be, "Do you breed all your queens from *pure Italian* stock?" a question which, in those years, was asked me scores of times. My answer invariably was, "No;" and then I had to explain that, according to my views, there is no such thing as a *pure Italian* bee or queen when viewed in the sense of a pure race, as the German or black bee is pure. At the best, I think the Italian bee is only a thoroughbred. Proof of my views is found in the fact that Italian bees vary from those coming from Italy which are so dark (a part of them) that they are hardly distinguishable from the German bees, to those from some breeders whose abdomens look almost like a "lump of gold" when sporting for the first time in the noonday sunshine. If the dark or leather-colored bees are pure, with their three bands scarcely distinguishable, and then only when the bees are filled with honey, what shall we say of those Italians whose five segments are a solid golden color with only a dark tip on the sixth?

We have, as a starting-point, a bee which, through hundreds of generations, penned in by the mountains of Italy, became established as a *variety* which proved to be superior to any thing the world contained elsewhere, which bee was imported to the United States about the middle of the last century, father L. L. Langstroth being one of the first importers. From the progeny of this Langstroth importation, Mrs. Ellen S. Tupper advertised queens. We sent \$20.00 for one of her best queens. This queen was of a light chestnut color, the whole length of her abdomen, and gave workers and a queen progeny above any thing previously coming into central New York. About 1873 or '4 we sent \$10.00 to H. A. King, Nevada, Ohio, for one of his best Italian queens. In this queen we had something bordering toward the orange, which gave bees with three bands that showed a chestnut-golden color, distinct enough so that all were to be seen without their being given honey to extend the abdomen, as was claimed necessary with imported stock to test their purity; and in this King queen we had bees that gave an average yield of comb honey 10 per cent above any thing before known in this section.

About that time, Mr. N. N. Betsinger said that he would rather have a certain colony of mine for honey production than any colony he ever looked at before. Later on I went to breeding from this queen. Her bees, and those from her daughters, readily outdistanced all the others in the yard for comb honey.

About that time I exchanged queens with Jos. M. Brooks, a noted beekeeper of Columbus, Ind., and through this exchange I not only added to the golden color of the bees I had already, but gained a point as to honey production and white cappings.

During the latter eighties I exchanged queens with Mr. L. L. Hearn, of Oakdale, W. Va., who was a noted breeder of "the best Italian bees" of those days, both of us claiming that, by this exchange, a gain would be made along all the lines necessary for the best bees. Since then I have made several exchanges; but as none of these seemed to make any advance over what was already in the home yard and at the out-apiary, they were discarded without mixing them with what I already had.

In the mean time nearly all the bees in this section have been changed from the blacks and hybrids of the past to good Italian stock, very largely by furnishing, with ripe queen-cells, free of charge, those who would come to the yard.

To further these Italian bees still more, drones from one of the choicest breeders have been kept till other drones were killed off, when queens from another best breeder were of the right age to mate with them, and in this way an improvement has been made. In a year or two, queens would be reared from the drone side, and young drones saved from the queen side.

To get at the longevity part of the matter, as well as to prove some other points, also to prolong the life of the queen in question, an extra choice breeder would be taken from her colony in early June, and a queen giving different-colored workers put in her place. In this way it was easy to tell when the last of the breeders' bees passed away. Making a change in this way the first of August, bees from the breeder I was then using were found to quite a number on July 4 of the next year, but none the tenth, six days later.

Now, I do not know whether this would be called "line breeding" or something else; but I have given the bit of history telling the source, and way used, to bring our bees up from where they were in the early seventies.

General Correspondence

WHAT IS A GOOD QUEEN?

The Fact that Colonies Vary Proves that Improvement is Possible; Choosing a Strain Adapted to the Locality

BY E. S. MILES

The quality of our bees is the foundation of our success. If one is to build a permanently successful business it is my belief that he must have a good strain of bees—one suited to his locality and methods; and the better the bees, the more successful the business, other things being equal.

The writer noticed, many years ago, that there is a great variation in bees; that they are no exception to the rule of variation that the close observer sees in all the animal kingdom.

If you want bad stingers you can find them; if you want those that swarm every favorable time—if you want those that seldom store much surplus, you can find them; and the wonder is that, under our present haphazard hit-or-miss, go-as-you-like way of breeding bees, they are not worse than they are.

But, of course, the hit-or-miss way does *hit* part of the time; hence *some* good colonies among almost all strains. When I say *good* colonies I do not mean strong ones; but I mean good ones from the viewpoint of the honey-producer.

If I were a nature student only, and interested in bees only as a study, I should be, perhaps, as much interested in a poor colony (from the honey-producer's standpoint) as in a good one. But I am speaking now solely on the utility of the bees for honey production.

In bees we see then, I say, a great variation in characteristics. Some have undertaken to deny this, but have simply advertised their own lack of powers of close observation or their lack of opportunity. This variation is the breeder's hope for better things. True, it will lead nowhere if not followed intelligently, and that is true of the hope of any thing better in any thing in the world. But first, we must know what we *want* in the bee—what traits to look for—before we start selection for any thing in particular; and I wish to go on record as claiming that one should have bees adapted to his own locality. A good strain developed in another and a different locality *may* be all right for yours, and then, again, it may not be.

There is a great variation as to how they

breed before, during, and after the flow; and the character of your location as to the number of flows, and when they come, determine when and how much you want them to breed for best results. And here I wish to remark that, in my estimation, there are two popular beliefs that do more to hold back the improvement of the bee than all else put together unless we except the old sin of neglect. These are, the belief that the more prolific the bees the better, and that queens reared under the natural-swarming impulse are the best.

I do not wish to speak for other than a white-clover or basswood locality, having had no experience with any other, and I am *not* of those who teach from other men's experience; but under that head I wish to state, as positively as I can make it, my dissent from these errors. Let us look at the bees as though their characteristics were habits. Let us say they have certain habits. One strain has a habit of swarming; another of not breeding strong in spring; another of not living through the winter; another of *not* swarming so long as they have a chance to store up honey; another of capping and building beautiful combs; another of making "greasy" cappings, etc. All experienced beemen have seen bees with all these "habits" and many more.

If we look carefully into these "habits" it will surprise us to find how many of them are linked together, or connected, one being a natural sequence of another, so that, if we avoid one, in some cases we also avoid another or more; and if we like *one*, and choose it, we may get another that is desirable along with it. Mind, however, that I do not say, "If you get one good habit *all* others are good;" for sometimes *two* good habits are the result of one cause. Now, when we come down to selecting, the real difficulty begins; for what two men see alike? What two men would both choose the same colony for a breeder in any certain yard? Yet in every yard of bees there is a *one* best one for breeding purposes if we could know it; and the man who does know, or comes nearest to knowing, every thing else being equal, will produce the finest strain of bees.

Right here, perhaps, some one will say, "Why, take that colony that gives the most honey, of course."

Yes, that's *one* test, surely; but what of (as we have heard of cases) a famous queen whose daughters none of them come up to her? In that case, evidently, we are on the wrong track *unless her daughters are above the average quality we can obtain from any other breeder*. But there may be other colonies not nearly so large surplus producers that may produce daughters more uniformly good producers. This can be explained on the supposition that the queen of the large-surplus colony may be a grade or mongrel in a very slight degree—so slight that it is noticeable in no way except through her progeny; or if not that, the mating is not the proper "nick," as stockmen say, to perpetuate all of the good qualities. Unless I am mistaken, it is *not* always the very finest and most perfect specimens among our domestic animals that produce the prize-winners and sweepstake getters, but certain strains mated in a certain way. As I understand it, the breeder is continually on the lookout for a sire or dam which will produce prize-winners, or specimens nearest to perfection.

What a howl of misunderstanding goes up when one mentions an "improved bee," a "non-swarming bee," or a "red-clover bee"! The wise one quickly says, "Let *me* take your non-swarmers, and I'll make 'em swarm the first good season." Why, bless your poor misunderstanding heart, *I* can take the finest thoroughbred cow and make her as worthless as any scrub in a year, and her progeny *scrubs* in four or five years or less. No one expects to reach perfection in a few years, nor expects to hold it, if ever reached, without his best efforts. There is a vast difference, my brethren, between "going on toward perfection," whether we ever "attain" or not, and leaning back on the traces and saying, "No use, it can't be done." If you won't do any thing yourself, my brother, in Heaven's name don't try to hold back the ones who are trying.

But to go back to our subject, I wished to call attention to a few of the habits that, according to my experience, appear to be related: The trait, or habit, of prolificness, and the swarming habit, go together. In other words, if you want *swarmers*, select very prolific strains of bees; but I have not been able to get the honey-gathering habit very strong in these extra-prolific strains. I do not say it can *not* be done; but all those I have had have not been *honey-gatherers* as compared with those with that habit. There are strains, however, of the

Italian bee that breed fairly well until a heavy flow comes, when their strong "habit" of honey-gathering takes possession of them and they bend every energy to storing honey, even to the point of almost stopping brood-rearing some of the best days. These are the bees to get our non-swarmers from, and I have yet to find a colony slow to swarm that was not a good honey-gatherer.

The point to decide and establish is, "How strong do we want this honey-storing habit, and not have it overdone so our colonies will not keep up proper strength for later use?" If I were running for extracted honey altogether, I should not fear overdoing the matter at all; but for section honey it would not do to have bees that fill the brood-combs too early in the season (the same bees that do this will not do it with plenty of built combs), as in extracting.

My idea of a bee for this locality (white clover and basswood) is one that must be hardy, so as to winter, of course, and just prolific enough to fill the hive fairly full of brood by the clover harvest; but they must have the honey-storing "habit" so strong that they fill every thing with honey before they swarm. Then I make it my business to see that they have plenty of room, so that they never reach that stage.

Some one will say, "Yes, sometimes they will fill every thing, and then, again, they'll swarm with lots of empty comb." True, my brother; true enough, if you are talking of bees bred "hit or miss," "promiscuous like," as most bees are; but that is not the kind I am referring to. I say you can, by selection, breed bees that will do as I suggest, if you can select the right ones to breed from. Why, how many times have I had people ask, "Had any swarms yet? I had a fine swarm to-day," and I would say, "If I had a colony that would swarm at *this* time of year I'd pinch the queen's head off." The party would look at me as though I were a freak, and just delighted in odd sayings. Yes, if you breed "hit or miss," as by natural swarming, you will have some freak colonies that will swarm, apparently, just to pass the time, and when they can not get enough to live on.

It is possible to have a strain that will gather a good living right beside these worthless freaks, and be building up slowly and steadily, and be ready for the crop, without much attention, when the hit-or-miss kind will surely *miss* unless you watch closely and feed; and even then the chances are for *swarms* later instead of honey.

There is a laughable illustration of this in the bee world to-day. The writer urged breeding a bee more for honey-gathering

and less for swarming, some years ago, and gave a record showing a very small percentage of swarming. A certain writer would not hear to the idea that the bee could be improved, but claimed that a bee is a bee, always was, and always will be the same, and that it is only through the ignorant imagination that unlearned men claim a better bee than those commonly found through the country; but *now* this man is announcing that he has lost about all his bees, owing to there not being enough nectar for brood-rearing, and that he has given up the production of section honey owing to the appalling number of unfinished sections. The writer kept bees for years within five miles of this man's location; is well acquainted all through his neighborhood, having grown to manhood there, and knows both from observation and personal experience that the locality is practically the same as here; yet we have produced, during these same seasons, good average crops; have increased the number of our colonies each year, and have found the business profitable right along, both of extracted and of section honey. If this is not an argument for an improved bee, then pardon me for relating it, as that is my only purpose.

Now a word about red-clover bees. I have never had bees from the advertised red-clover strains; but, listen: Two seasons out of the past seven these "improved" or select-bred Italians have given me a nice surplus from red clover, one year storing clear white honey at the time that common hybrids right beside them stored dark honey-dew.

A little is also due to the old-fogy notion that natural-swarming queens are the best. Whoever contends thus has *not* tried both, or else he does not know how to rear queens outside of natural swarming. If there is

one thing I have learned, and am *sure* of, it is that I can have *better* queens by artificial methods than by swarming—not only because I rear them from the stocks I like, so as to get the "habits" I want; but I can not get as good queens from these same stocks if reared in swarming colonies. This is something I can not explain; but I think the *disposition* of the colony nursing the young queens may possibly be imparted to the young queens to some extent. I am thoroughly convinced that, to improve and *hold the improvement* permanently, we must breed our queens in colonies that have no desire *except* for a queen, and possibly when their energy is devoted to honey-gathering, as in a good flow.

I would not give a fig for all the improvement gained in 100 years by natural swarming, however managed. Such a plan is out of date; it is a back number, and every progressive and wide-awake honey-producer can do better without it. He can handle more bees and raise more honey with the same labor without; then why not get rid of it?

Breed it out! Breed it out! It isn't the fellows who have *tried* who say it can not be done, but it's those who have *not*.

If you don't want swarming, don't breed from swarming colonies nor use them for cell-building. And don't keep bees that tend to keep an extra-large amount of brood through the flow, as, one year with another, they will not pay as well in a clover or basswood location, and they will make more labor by swarming.

This is so large a subject that it is difficult to treat it in one or even two articles; but this is given in hopes of giving cause for thought and discussion.

Dunlap, Iowa.

THE LACK OF A STANDARD OF MARKINGS TO DETERMINE THE DIFFERENT STRAINS OF ITALIANS

BY ARTHUR WILLIAMS

A number of years ago we began making preparations for conducting a series of experiments with the different races and their crosses, by acquiring some isolated tracts where no bees existed, and where forage was sufficient to insure success. Right at the outset, however, we met with difficulty in determining the purity of any certain race, for there seems to be no fixed standard—no uniformity of type. Every breeder from whom we purchased queens testified to their purity, yet hardly any two would

produce bees alike; and two queens from the same breeder would show different colors and characteristics.

Last year I began trying the direct importation; but the distance here is so great that, with the present mailing-cage, it is any thing but a success; in fact, for all my dealings with queen-breeders I have very little to show but considerable expense and experience and a magnificent collection of queen-cages. I might add that, for ingenuity in inventing excuses, I believe that

queen-breeders outclass any other people I have ever seen.

I received a certain breeder's card that was sent with an untested golden that I ordered after trying tested queens with unsatisfactory results. The queen accompanying the card was a very pretty golden, all right; but her progeny are any thing but goldens—two bands are the best that any of them show.

A number of years ago Mr. A. I. Root recommended gorging bees with honey and examining them by transmitted light. Those that showed only two bands were to be called *hybrids*. Well, these bees *are* hybrids all right. This is only one instance of many. The trouble seems to be that there is no well-defined standard to breed to; and as long as this chaotic condition exists, breeders can dispose of mismated queens with impunity; and even with the most conscientious there is bound to be so much variation that misunderstandings and dissatisfaction are bound to occur.

My suggestion is that a body composed of the best representative beekeepers in the country, with The A. I. Root Company and Dr. Phillips, form a standard as to what every known race should be in its purity; then The A. I. Root Company will publish a little book with colored plates and complete description. This should be accepted as authority, and every breeder conform as nearly as possible to the type therein set forth. Then, and not until then, will there be much progress made in developing the honey-bee.

Arroyo Grande, Cal.

[It is true there is no uniform scheme by which different strains of Italian bees may be distinguished. A golden Italian bee may be any thing from a bright-yellow three-banded to a yellow five-banded with an occasional specimen of bee yellow all over; but we have the proof now that there are very few five-banded and yellow-all-over bees. The so-called five-banded queens usually do not show up any better than three-banded, four-banded, with occasional five-banded bees. There are those who have claimed to have all five-banded bees; but when we come to examine them very carefully it appears that the larger percentage of the bees are four-banded, with an occasional five-banded bee. For that reason we have discouraged the advertising of five-banded bees, and have recommended the term "golden." This term is somewhat flexible, and means any thing from a bright three-banded Italian to a four-banded bee. As there is such a difference in marking of

the same queen it would be very difficult to make a uniform standard; and about all one can do is to advertise golden bees and state such a queen will run such a percentage of four-banded and such a percentage of five-banded; but one can not very well advertise to produce bees running nothing less than four-banded and the majority five-banded—at least we have not seen any stock of that kind.

When it comes to pure Italians, it is generally accepted throughout that three yellow bands are the standard markings for ordinary Italian bees; but nevertheless it is a fact that bees direct from Italy will sometimes show only two bands and two bands and a half; that is to say, the third band next to the thorax is so indistinct that it does not show unless the bees are filled with honey, as A. I. Root recommended years ago. Some of the finest and best workers we have ever had have been leather-colored bees; that is to say, they had two bands clear and a third band showing indistinctly, or what might be called a $2\frac{1}{2}$ -banded bee, as George B. Howe would say.

We don't like to discourage any effort toward securing a uniform standard, because of the variation that appears in the golden Italians. In the stock that we sell of this kind, we do not guarantee any thing except bright yellow color; and as far as we ever go is to guarantee three yellow bands of bright yellow and occasionally four yellow bands. Sometimes we are fortunate enough to have stock that will run three-banded and largely four-banded, say 25 per cent three-banded and 70 per cent four-banded, and perhaps 5 per cent five-banded. Such stock we would call very bright golden, and about as good as any one could ever secure. Now, unfortunately, queens from such a queen would show bees three-banded and four-banded; possibly they would show only three bands; they might take after their father; and it is unfortunate, too, that some of these so-called golden breeders will have daughters that will show bees of only two bands. For that reason we don't like to sell golden Italians; we prefer to sell the regular standard three-banded bees that will run fairly uniform. Bees that have been bred for color are very unstable in their markings.

If any one can propose any scheme that will establish a uniform standard for all bees, we shall be glad to adopt it. Tentatively we might suggest for the leather-colored Italians, especially imported, that the standard be two, two and one-half to three bands for leather-colored and imported. For ordinary Italians, three-banded;



Mr. Harvey's apiary at Montrose, Col., spring count 200; fall count, 280. Honey crop 850 cases comb honey and 40 cases culls.

for Goldenes, three-banded and four-banded. It would be a great deal better to make the standard a little *under* what the bees will probably show than to make it too high.

When the standard calls for too much, the stock itself will be liable to fall below it, and this will cause ill feeling and complaint. —Ed.]

SOME BEEMEN I HAVE KNOWN

M. W. Harvey, Montrose.

BY WESLEY FOSTER

Once in a while we meet a beekeeper whose careful, painstaking, methodical ways stand out in bold relief. Such a beekeeper, when found, will generally be quiet and unassuming, and one who has to be drawn out by questioning. He will rarely speak at conventions, and, unless asked, will not tell of the methods used in his beekeeping practice.

Such a man is M. W. Harvey, of Montrose, owner of 700 colonies of bees all in well-painted dovetailed hives located in apiaries of methodical arrangement with a well-built honey-house at each outyard. He drives a Ford touring-car, and has had the least expense for upkeep of any automobilist I have heard of. Mr. J. C. Matthews says that Mr. Harvey never drives faster than 10 miles an hour. I asked Mr. Harvey what he thought of the Ford, and he replied that it was the best-built car, regardless of price, and he spoke as though he meant every word. His words have a peculiar power of carrying conviction, probably be-

cause, when he does speak, he speaks out of his experience. He will not give *you* his opinion on any thing. If he does not know he will tell you so—no “guess so” or “perhaps” about it.

Mr. Harvey, contrary to the practice of most beekeepers, does not keep any bees, fixtures, or appliances at home. If he does he had them all out of sight when I called. Every thing is kept in the houses at the outyards, and the home place does not betray his kind of business. From all appearances Mr. Harvey might be a retired farmer, a business man, or a professional man with his office over town. The same order is evident about his neat home that is shown at his apiaries. His methods of honey production have been reduced to a system by which he has been able to obtain higher averages per colony, with a better quality of honey, than his fellow beekeepers. He told me that any beekeeper following the same system, and working as thoroughly as he does, can have the same results. There



Closer view of Mr. Harvey's apiary, showing the way western producers take off honey during a good flow. A few of the bees are smoked out, the super jerked off, and then stood on end to allow the rest of the bees to come out at their leisure. This plan can be followed only during a honey flow.

is no wizardry about his methods unless the careful, thoughtful, methodical worker is a wizard.

Mr. and Mrs. Harvey spend their winters in California, as do quite a number of other western beemen and families. Once a beeman goes there for the winter he goes back year after year if the crop warrants it. He told me he had made from \$3000 to \$5000

per year from his bees regularly, although he has suffered very much from winter and spring losses and from poisoning of his bees by careless people spraying fruit-trees while in bloom. Would that we might have more beemen like Mr. Harvey. He is helping to raise the standards of beekeeping, not by his preaching but by his practice.

Boulder, Col.

REARING GOOD QUEENS

BY R. F. HOLTERMANN

From an address given by Mr. Roy Keet, Black River, N. Y., at a convention of the Jefferson and St. Lawrence County Beekeepers

In Jefferson and St. Lawrence counties live some of the best beekeepers in New York; and the past poor season in that part of the State did not appear to dampen their beekeeping ardor in the least.

Mr. Roy Keet, of Black River, N. Y., gave the following on rearing good queens:

A good queen is, in my estimation, the most important factor of success in beekeeping. One may be the fortunate owner of all modern equipment and still not have good queens. Good queens are as essential in the apiary as are good cows in the herd. Success depends on the quality of the queen.

It may be well to explain here what I mean by a good queen. She must be of good stock; she should be reared under the best possible conditions, which I shall name later on; she should be strong and prolific;

she should lay her eggs in a compact cluster, and not scatter them; her bees should be gentle; and in these days of brood diseases she must be purely mated. I will add further from my experience, I believe she should be a pure Italian.

METHOD OF REARING.

First, we must choose the colony for our work. This should not be a difficult matter, for this colony need not be the strongest in the yard. One having six combs of brood with plenty of bees to cover them will answer. Having selected the colony, we first remove the queen. If she is a valuable one we retain her in a nucleus for future use. Frequently, under such circumstances, I build up this nucleus into a full colony for winter. We next remove as much of the unsealed brood as possible. In a ten-

frame hive I crowd the bees down to five or six combs, and follow up with a two-inch chaff dummy. We now have the bees crowded; and, in addition to being queenless, their eggs and larvæ will also have been taken away. So we close the hive, and leave them five days to their unpleasant meditation.

Unless honey is coming in steadily from natural sources we must feed every morning and night. For this purpose I prefer an entrance feeder, consisting of a quart Mason jar, having a perforated cap or cover. I close all the holes, but two, with wax. It takes the bees about twenty-four hours to empty this jar of thin honey, and this means that it comes to them slowly like a natural honey-flow, and thus prevents robbing. On this account it is much better than feeding the whole amount at once. This feeding should be kept up until the queen-cells are sealed.

We now proceed to our breeding colony, and place a good clean worker comb in the very center of the brood-nest, where the breeding queen will be most likely to find it first. When she has laid a few hundred eggs this comb is taken out and placed in the center of our prepared queenless colony mentioned above. In three days they will hatch, and be abundantly fed. In twelve hours after they hatch they are ready to be transferred to the cell-cups.

In this queenless colony the little larvæ will be fairly swimming in jelly. If the directions have been followed closely, no extra royal jelly will be needed in the process of grafting. Lift from the cell the little larva, jelly and all, on the point of a flexible quill, and place in the prepared cell-cup. Graft fifteen of these cups in like manner, and take them back to the queenless colony. Make sure that the bees have started no other cells in the meantime. If so, cut out every one. Arrange the combs so that the frame containing the prepared cell-cups be placed between two combs of hatching brood. Close the hive, and do not disturb it for forty-eight hours. Every cell should be accepted, owing to the small number grafted.

The cells may be left till the twelfth day: then take them out and place them in a three-frame nucleus to hatch. Be very careful that the cells be not chilled, for a chilled cell will make a dark queen.

Several things must be kept in mind. First, that the queen-rearing colony is free from unsealed brood, and that the bees are crowded down to fewer combs. Contract the entrance according to the temperature, and feed daily. Create in this way a pros-

perous condition, and do not disturb the bees unnecessarily.

Queens reared in this manner are started from the *egg*. We do not guess at the age of the larva, for we transfer larva, jelly, and all at one time, so that the delicate larva itself is not touched. From the very start the larva is fed as for a queen in just the way the bees do it when left to their own resources. Under natural conditions bees do not feed a larva three days for a worker, then change their minds and feed royal jelly for a queen. They feed royal jelly from the very start; so, in order to rear good queens, we must do the same. Let the bees work as near to nature as possible, and thus avoid many mistakes.

Mr. George B. Howe, also of Black River, said he generally uses a strong colony for queen-rearing, and that he likes to find a colony superseding their queen, but that expert beekeepers can rear good queens without colonies that are superseding.

Mr. F. D. House, President of The New York State Beekeepers' Association, said that he prefers to crowd the bees even more than the amount mentioned by Mr. Keet above. That is, he crowds a ten-frame colony down on to three frames, taking away all brood, but leaving pollen, honey, and water. He said further that fifteen cells is a rather small number, but that such number is all right nevertheless. Mr. House feeds ten to fifteen days before queen-rearing time unless there is a natural honey-flow. This brings about swarming conditions.

Mr. Howe said that in his locality he wants the capped brood, because the nights are cooler than they are in Mr. House's locality. Mr. Keet said he wants the capped brood not only for warmth, but for providing plenty of nurse bees.

A further statement was made to the effect that the reason these bees cut out the sides of the queen-cells and consume the royal jelly, even in July, is the condition of the honey-flow or absence of the flow being adverse to queen-rearing; also dead larvæ, excitement, too much smoke, and black bees.

Brantford, Ont.

[An interesting point is raised above in the plan given by Mr. Keet—that is, whether it would be better to have the larvæ intended for queens to be transferred into the queen-cell cups with royal jelly at the very first. The whole question hinges upon this: Whether worker larvæ are fed royal jelly the first three days or not. Some of our authorities have claimed that all worker larvæ are fed royal jelly the first three days, and that they are then fed a coarser food.

Those intended for queens, however, are fed the richer royal jelly right along. Whether this be the case we do not know, as it is a rather difficult matter to get any reliable

data on. If any of our readers have had any opportunity for making experiments one way or the other, we should be glad to hear from them.—ED.]

THE STRONGEST VIRGINS MATE THE EARLIEST AND BECOME THE BEST QUEENS

BY F. A. HOOPER

Why can not all the colonies in the same yard store alike? In an apiary of, say, 300 colonies, one will find that about one-third store on an average 8 imperial gallons of honey (112 pounds each); another hundred will average about 4 gallons, and the remainder will average from three gallons to nothing. The first third we class as No. 1. These colonies, on the opening of the season, have a large force of bees ready for the field; and on examining them, the combs will be found to have evenly sealed brood and plenty of stores.

The next third we class as No. 2. These colonies, on the opening of the season, are not strong enough to take advantage of the first bloom, for they are deficient in brood, bees, and stores.

The remaining third we class as No. 3. These, on the opening of the season, are so poor that they have to be supplied with combs of brood and stores to keep them alive until they gain sufficient strength to be able to gather nectar for themselves.

These 300 colonies may have queens all reared from the same mother and under the same conditions, yet some are very much inferior to the others.

Again, suppose we make up, say, 100 three-frame nuclei, each nucleus having the same amount of bees, brood, and stores, or as near as possible. The cells are distributed the same day, and from five to twelve days all these virgin queens are mated. In eight weeks, and sometimes less, many of these nuclei will have built up to strong ten-frame colonies, while others will take

from three to four months before they become established colonies. There are others, again, that will not build up, but dwindle and die out if left unaided.

THE FAULT LIES WITH THE QUEEN.

No one, by looking at a queen, can tell for a certainty that she is of good quality. I have had them as large as a queen should be, yet they were not worth a pound of honey. On the other hand I have had queens with nothing very remarkable about them, yet their subjects stored twenty imperial gallons of honey in one season—that is, from December to the following June. From these queens I bred several, but none of their daughters proved of much value.

For the sake of experiment I once bred some queens from very inferior stock, and yet of that lot there was a couple whose bees stored over 100 pounds of honey in a season. Is there no method left untried to get all our queens to give good results?

We all know that virgin queens take from four to twelve days in mating. Those that get mated on the tenth, eleventh, and twelfth day generally turn out drone-layers, or start drone-laying before they commence to lay worker eggs. Note these queens carefully; and before the following season opens they will have died out or absconded with their little swarm.

In my opinion it is the strongest and most healthy virgins that get mated soon after hatching, and it is these queens we are indebted to for large yields of honey.

Four Paths, Clarendon, Jamaica, B. W. I.

UNIFORMITY IN QUEENS AND RESULTS NOT IMPOSSIBLE

BY G. M. DOOLITTLE

Mr. Hooper, in the foregoing, tells us something of his experience with beekeeping on that sunny island Jamaica, where there are no frosts, to say nothing of the 20 to 30 degrees below zero which we here in York State have to contend with. It would seem that there should be no trouble in having every colony in such a warm climate brought to perfection ready for any honey

harvest when it comes. But instead of perfection I find him telling of just about the same thing I used to have 25 to 40 years ago, namely, one-third of the colonies in good condition for the harvest; one-third scarcely fair, while the remaining third are "no good" so far as any surplus is concerned. And I note that he seems to think that the fault of the poorness of the last

two thirds, or of 200 out of the 300 colonies, lies with the queen. Undoubtedly this is largely true; but the stores to be used by the different colonies while in a state of repose, the age and vitality of the bees, and the location of the colonies, all have an important bearing in this matter.

Some colonies get started to work to a greater or less extent on different bloom; and where so started they will adhere to quite an extent on that bloom; and when this bloom is a long distance from the hive the vitality of the bees is worn out faster than when it is nearer their home. Then colonies located in the shade, in low damp places, or with the entrance facing away from the sun, do not ripen their stores as perfectly as do those with conditions more favorable. We used to talk about colonies as "near alike as two peas," with one doing good work and the other getting scarcely a living; but most of our practical apiarists realize that, where every thing is considered, two colonies which may appear perfectly alike can, by one or more "cog-wheels" being out of mesh, be very dissimilar; and this dissimilarity may make all the difference between the good and the poor.

But let us turn our attention to the part which the queen plays in this matter. Mr. Hooper says, "These 300 colonies may have queens all reared from the same mother and under the same conditions, yet some are very much inferior to others." Under natural swarming this is possible; but under the guidance of an intelligent queen-breeder it is not probable. With natural swarming the rule is that, with the sealing of the first queen-cell, out comes the first or prime swarm; and with this swarm go $\frac{3}{4}$ to $\frac{7}{8}$ of all the bees the colony numbered before swarming. The inmate of the first queen-cell sealed has had all the food and attention lavished on it that the first one did to bring forth a queen superior in every respect; and all that is required from now on till she emerges from her cell is sufficient heat for her development. But as a rule there will be half a dozen queen larvæ in other cells, all the way from those just hatched from the egg to those near to sealing over, and these can not have the attention lavished on them that the first did; therefore they, as Mr. Hooper says, "may be inferior," and that just in proportion to the lack of the best environment.

Again, Mr. Hooper tells us, "We all know that virgin queens take from four to twelve days in mating." If by this he means that any queen ever mates in four days from *maturity*, I can not be classed with the "all;" for I never knew of such an occurrence. I do not say that such is *not* possible

under the genial sunshine of Jamaica, but even that is doubtful. I once rushed into print with the report that I had a queen *emerge from the cell* on the first day of July, lead out a swarm on the second day, and commence to lay on the fourth day of the same month, and so I reasoned that all of the old records were broken. But the next year, during swarming time, we had a week of cool rainy weather, so disagreeable that not a swarm issued. On the eighth day the sun came out, and the air was balmy. Then, to my surprise, I found plenty of young queens running around in hives which had had swarms issue from them with the old or mother queen, from four to eight hours before. In this way my "broken records" showed that I was not familiar with the fact, often proven since then, that virgin queens are often held in their cells by the worker bees from one to eight days after maturity, in which case they go out to mate in accord with the length of time from their *maturity* rather than from the time they emerged from the cell.

During those earlier years of my bee-keeping life I was continually puzzling over the problem of part of my colonies giving good yields of honey while others did scarcely any thing; and it was not till I commenced rearing queens as given in "Scientific Queen-rearing" that I found any answer to that puzzle. Then, with the selection of larvæ of proper age, from my best queen mothers, I began to obtain more nearly like results from all the colonies in the apiary. I now had matters under my own control to a great extent; and by taking a frame of nicely cleaned and polished comb from a colony which was preparing the cells for the first eggs laid by a recently mated virgin queen, and putting this in with my best breeder for twelve hours, and then taking it out and giving it to a queenless colony, I learned just the size and looks of a larva twenty-four to thirty-six hours old, which were the ages when they could be turned into the best of queens to the best advantage by "broody" bees, with the richest chyle they had prepared for these larvæ.

Having these things learned I then had nineteen out of twenty of my virgin queens mated and laying on the eighth or ninth day after maturity, with not one out of fifty failing to have plenty of eggs in the combs of her colony or nucleus on the tenth day, during the summer months, which would give about such weather as Mr. Hooper has during two-thirds of the year. When September and October come on, even the best of our queens take more time after their maturity for mating; and in October there

are only occasional days when the weather is suitable for drones and queens to fly, in which case the time of their mating is wholly dependent on the weather.

At the present time, after years of breeding from the best queens and along the lines given, if we put the standard for a good nectar season as 100 pounds, very few are the colonies which give less than 80 lbs., and equally few are those which give more than 120 lbs., all colonies being given the same attention by the one who "leaves no stone

unturned" that success may be attained. With a year such as Dr. Miller had in 1913, these figures might be easily doubled, while in a very poor year 30 pounds might be the standard, with 20 lbs. for the poorest and 40 pounds for the best.

In this striving, and in a measure attaining, has come a whole lot of pleasure, far ahead of gossip at a country store, which so many consider necessary as a "rest from their labors."

Borodino, N. Y.

THE LACK OF A STANDARD OF MARKINGS TO DETERMINE THE DIFFERENT STRAINS OF ITALIANS

BY H. G. QUIRIN

There is no doubt in our estimation that the Italian bee has been improved to quite an extent; but we feel equally confident that there is still plenty of room for improvement. The progress toward a better bee has been rather slow—the chief reason, in our estimation, being that nearly all queen-breeders have a particular standard toward which they are working. The qualities considered as most important by one breeder may not be considered as such by another. A bee best suited for a southern climate may not be the best for our northern States, and vice versa.

Mr. Hooper makes a statement in the latter part of his article with which but few breeders in the United States will agree; at least we don't quite agree with him where he says that those virgins which mate on the tenth, eleventh, and twelfth days generally turn out to be drone-layers, or start

laying drone eggs before they commence to lay worker eggs. We know nothing about the weather conditions in Jamaica. Probably the weather does not interfere with the natural inclination of the virgins to the same extent it does here; but in our own experience, where nice days are the rule, virgins will mate (the majority of them) in from six to nine days. A small per cent will mate both before and after that time. On the other hand, where weather conditions interfere, or where a virgin is otherwise prevented from taking her flight, she may be mated considerably after the twelfth day, and turn out to be as good and long-lived as any queen. However, circumstances alter cases. Where a virgin is kept in a cage till ten or twelve days old she may turn out to be a failure; while the same queen, if kept in a nucleus and prevented from taking flight for two weeks merely by

inclement weather, has a much better chance for becoming a good queen.

An old beeman from whom we got our first pointers on bees many years ago (he was a doctor and a close student of nature) told us that he would a little rather have queens-reared so late in the fall that the young queens would not begin laying till the next spring. When we asked him why he preferred such queens he claimed that they were hard-



Mr. and Mrs. John Stevensen among their bees in Everton, Mo.

ier. We can not say whether he made sufficient experiments along this line to know, or whether he simply held to this as a theory. In our experience we can not recall that we have ever noticed any difference.

From a theoretical point of view a hardy, long-lived queen ought to produce long-lived bees. The longevity of a worker bee depends upon the disposition of the colony, to a great extent. The workers of a nervously disposed colony are almost always shorter-lived. They may be out mornings somewhat earlier, and possibly out later evenings; yet every touch of their hive

brings them boiling out; every ray of sunlight seems to bring them forth in quest of stores. When it comes to wintering here in the North, such bees won't winter as well as the quieter bees, the main reason being that they won't cluster as closely. They have a sort of tendency to spread out over the combs more than the quiet bees. It is our candid opinion that the lack of longevity in some bees is due to their foolish habits rather than to the lack of some inherited quality from the queen, such as physical hardiness.

Bellevue, Ohio.

IMPROVEMENT BY SELECTION IN BREEDING IS GRADUAL

BY R. M. SPENCER

Many articles have been written on the subject of the best bees, the rearing of queens, etc., all of which lead up to the same point—the production of the most honey. We are all well aware that there are certain races of bees that cap their honey whiter—for example, the blacks; others that swarm considerably—the Carniolans; a cross of the blacks with some other race like the Italians makes a better bee for the production of fancy comb honey, while the Carniolan is a better bee for increase on account of its tendency to swarm. If the producers were all running for extracted honey there would be a far greater gain in the purity of the bees in the country, owing to the fact that black stock would be almost eliminated. A race of bees that will gather more honey is desired by the extracted-honey producer; and thus a territory where extracted-honey production is the rule is the best for rearing pure queens.

As Doolittle says in his department in the January 1st issue, there is no race that excels the dark Italians for honey-gathering qualities, and there is no question but that these bees are the ones for the extracted-honey producer. The question, then, is how to produce mothers from these queens which the apiarist buys from the queen-breeder who is breeding from the best Italian stock.

All honey-producers know that there is a great difference in the production of honey from different colonies in the same yard bred from the same mother, and this difference can not always be accounted for, even by the most experienced apiarist or queen-breeder. If it were possible to do so the poor queens could be superseded at once, and far more headway made, as in poultry-raising, for instance. This brings us down

to the proposition of breeding from queens that produce workers that make a certain average in a yard.

Years ago I had a certain colony that gathered seventeen ten-frame supers of nine frames each of extracted honey, which supers averaged about 30 pounds of honey each. The average yield in this yard was about 200 pounds per colony. Any breeder knows that, if I had reared 100 queens from the one queen whose bees made such a record, it would have been doubtful whether I could have secured one that would have equaled the original colony in honey-gathering.

The most practical plan for the apiarist is to use any one of the well-tried methods of rearing queens, and select several queens to rear from, whose bees show better honey-gathering qualities than the average in the yard, and also drones from colonies showing better honey-gathering qualities, thus making a small gain each year. Too little attention is paid to the drones when breeding is considered. I expect to see the day when drone brood or drones will be shipped by queen-breeders to apiarists for the purpose of providing superior drones for the mating of their queens.

HOW TO PREVENT THE LOSS OF YOUNG QUEENS IN MATING.

The mating of the queen after she is hatched has been one of the hardest problems, for so many of the young queens are lost. It is usually supposed that the missing queens are caught by birds, or that they enter the wrong hives and are killed. A year ago I made some careful experiments to see what proportion of queens became laying when requeening by giving cells due to hatch within 48 hours after the old queens were removed. In each of 100 hives

I gave the bees a cell as soon as the old queen was removed. Out of the entire lot, less than one-third became laying queens. After this experiment I again selected 100 colonies and gave the bees a cell *three days* after the old queen was removed, cutting out all the first cells started by the bees. Out of this lot about half became laying queens. Once more I selected 100 colonies, but gave the cells *eight days* after the queens had been removed, cutting out all cells started by the bees as before. Out of this lot fully 75 became laying queens. In each test the queens hatched in over 95 per cent of the cells given, showing that the loss came after the queens emerged.

After the bees once find out the loss of their queen, they start preparations to rear another. These preparations are hardly started within 48 hours when the young queen hatches if the cell was given at the same time the old queen was removed, thus

causing an abnormal condition, bringing about the destruction of the virgin by the workers. When the cells built by the bees at the time the old queen was removed are left until they are nearly ready to hatch and then destroyed, and the new cell given, every thing is normal and the virgin queen is accepted at once. Every apiarist knows that the loss of virgins when mating from parent colonies that have swarmed is not very large.

Being an extracted-honey producer as well as a queen-breeder I will say that, judging from the experience I have had in this section, the pure Italian stock is the best, and I have made a gain in the average colony by breeding from this stock. These bees are more resistant to disease, and gentler to handle. No mistake can be made by breeding from the best Italian stock obtainable, and "staying with it."

Nordhoff, Cal.

SOME INSTANCES OF STRIKING VARIATIONS IN QUEENS REARED UNDER LIKE CIRCUMSTANCES

BY J. B. CASE

An article on queen-rearing, to be of value, must not be the mere opinion of the writer, but must be based on the experience of one or more persons. Some important inventions, methods, and plans have come through a mere hint that, perhaps, the giver did not profit by. So, while I may have nothing new, yet it is possible that some one may get a hint that may set some train of thought in motion that may result in something valuable.

When GLEANINGS was a quarterly I had two or three stands of bees in New Jersey. As they increased I found that some colonies gave much better results than others, although, so far as I could see, all had an equal chance. I had a buckwheat location; but my management resulted in pure Italians giving more honey than blacks or hybrids.

In 1881 I paid an extra price for the colony that had made the most honey the previous year in a yard of some 60 Italian colonies. This colony was very strong, and the bees evidently knew that the queen was failing, as they built five cells and swarmed when apple-blossoms were open, the old queen being lost. As I was desirous of getting as many queens from the stock as possible I formed nuclei by breaking the colony up, and succeeded in getting five purely mated queens. The rest of the season was very poor, and these nuclei went into

quarters weak in bees but with plenty of stores from buckwheat. They were packed in thin nucleus hives inside my large hives on four combs of nearly solid sealed stores with chaff all around. All wintered well; and as soon as they became crowded they were placed in large hives with chaff on both sides of the brood-nest. Combs were added as they became crowded; and when the weather got warm the brood was spread, and combs of honey with cappings broken were inserted, and those queens laid "some." There were in Long Idea hives.

About the middle of June, No. 1 swarmed. The colony had 17 combs, with brood in 15 to the amount of 1100 square inches, actual measure. They were hived on eight of the best-filled combs of brood, and gave 80 lbs. of section honey from clover and 45 from buckwheat. The old colony gave 50 lbs. buckwheat honey in sections. The other four did not swarm. No. 2 gave 140 lbs. (had 1000 square inches of brood); No. 3 gave 125 lbs.; No. 4, 110 lbs.; No. 5 gave the average of the whole yard—about 97 lbs. Here were five queens reared under apparently the same conditions, and, so far as I could see, given the same chance, yet one gave a swarm and nearly doubled the honey that the other one gave. No. 1 gave excellent daughters.

I moved to Florida in 1885 on account of my health. In 1890 I had a nice little apiary

with Italians from the old No. 1 stock. I concluded to rear queens for the market, and bought some good Italian queens for my poorer colonies; got a Doolittle breeder, and in 1891 offered queens for sale.

In 1894 I bought a breeder from Elmer Hutchinson that was a dandy. I sold Harry Mitchel, Hawks Park, Fla., 17 queens. The next year was the "banner year" for this part of Florida for honey. Mr. Mitchel reported that all the queens were good, and helped greatly to give him his large yield—an average of 380 lbs., I believe—but one had, by actual weight, given over 600 lbs. These queens were reared as carefully as I knew how, and the bees were managed by one of the best beekeepers of that or probably any other day. Why the difference?

A few years ago I sent one of the most prominent beekeepers of Texas six queens—untested. The next year he wrote me that one of the queens he bought of me was one of the best he had ever owned, and was so valuable that she ought to be used for a breeder; that she was extraordinarily prolific, and that her colony had made a surprising amount of honey. I arranged to have her sent to me. She was medium in size, but was the best all-around breeder I ever owned, as she transmitted her good qualities in a large measure to her daughters. Were *all* her eggs capable of producing good queens?

The six queens mentioned above were all reared from the same mother, within a few days, and under the same conditions as nearly as I could give them. There was no complaint about the other five; but what accounts for this one being so far superior to the others? Queens reared from the above queen, just before she died of old age, seemed to be just as good as those reared when she was in her prime. While an extra-good queen can not be told from her looks, yet the most satisfactory breed-

ers I have had have been of good appearance, and medium to rather large. However, one "fancy" breeder that I paid a high price for was one of the poorest breeders or queens that I ever owned; but she was a beauty to look at.

A heavy honey-flow, when bees store honey around and on the cells, is not a good time to rear queens. Some of the poorest queens I have reared were reared during a heavy flow of honey. Some very large queens are worthless, while some very small ones are prolific; therefore size does not mark a queen's value.

From some cause some virgins—fine ones too—are very slow to mate when all conditions seem to be favorable. I think the slow ones account for most of the drone-layers. Perhaps poor drones are the cause frequently. Virgins delayed from mating on account of the weather are not so likely to be drone-layers as those that are slow from no apparent reason. Is the fault in the egg, feeding, or method?

I believe the following points are essential in order to rear good queens:

1. Use the best breeder available.
2. Use the best cell-builders in the yard.
3. Make the conditions, just as nearly as possible, to conform to the natural conditions when bees are contented and prospering, somewhere near the comb-building point, when bees are feeding their young lavishly, but not swamping them with honey.
4. Never use a larva that has been starved at some time in her existence, or that has not had an abundance of food of the right consistency, and destroy all larvæ not well fed, or that have had honey stored around the cell.

Briefly, I consider these to be important points in rearing the best queens. I don't know it all. Who does?

Port Orange, Fla.

THE VALUE OF CAREFULLY KEPT RECORDS IN BREEDING

BY C. F. BENDER

I think that the breeding of bees is one of the most important matters connected with our pursuit. "Pick the best colony and raise all your queens from that" sounds very simple, yet I don't remember a season when I ever did just that—partly because I could never be sure which was the best colony, and partly because I feared the effect of in-breeding if I stuck too closely to one family. While it is not easy to choose the best colony, all things considered, it is

not difficult, out of a hundred or two hundred colonies, to select a dozen or more that are far above the average. It is quite a help to have a large number to select from. When the bees are hauled to the outyards in the spring, all the best are left for the home apiary, as I expect to rear all my queens there; and those colonies that are not used for queens will furnish drones of the best quality.

In selecting a queen mother the amount

of honey stored is the first item. The dozen or so showing the highest yields are graded according to that; then those having serious faults are marked out. By queen-rearing time the choice has usually narrowed down to three or four; and if all seem equally good I prefer to breed from all of them. In general, all faults except bad temper and propolizing will help to reduce the yield of the colony, and so need not be specially noticed. For instance, swarming or bad wintering will usually put the colony below the average in storing, and so rule it out.

A system of records is a necessity if one is trying to build up a good strain of bees. A record must be kept of the age of each queen, the amount of honey produced, and the number of the colony from which the queen came. For example, my best queen the past season was marked on the record 32q11, meaning that the queen was reared in 1911, from brood obtained from colony No. 32. By looking over my records I find that a dozen or more sisters of this queen are still living, and that nearly all have produced exceptionally good colonies. Turning to the 1911 record we find that the mother of these queens came in like manner from 29q08; and we can trace any queen back and discover all her relationships as far back as 1899, when my system of record-keeping was begun.

If one is rearing queens to be used in comb-honey production it is necessary to keep track of the finish and filling of sections as well as of the number. Some colonies will store a lot of honey, but will put so much propolis on the cappings that the honey must be sold for No. 2. Some will make a start in every section, even in a light flow, and leave the majority of them unfinished or very light in weight. Others will start only a few sections at a time, and fill them full as they go. I had a weak colony the past season that gave 18 plump sections weighing a full pound each, 3 partly filled, and 7 with the foundation untouched. I regret that such colonies are usually below the average in the amount of honey stored.

Sometimes it is a strong temptation to use a queen whose bees are very gentle and beautiful, and only moderate as to storing. In such cases I often raise just a few queens from her, in the hope of getting one of her daughters whose bees have more energy. To some extent each one must value the different qualities for himself. I never saw a hive of bees that had *all* the good qualities in perfection, with none of the bad. Personally I dislike cross bees of all things, so a touch of bad temper cancels all merits for me. There is less wear on my nerves in

working two colonies of gentle bees than one of cross ones, and it takes me quite a little longer to go through a cross colony.

With some fear of raising a storm of protest, I will venture to give my opinion of golden or yellow Italians. I have handled a great many so-called goldens. At one time I had an entire apiary of them, with queens from all the leading breeders of yellow stock. It is a matter of regret to me that I can not afford to keep them. Their beauty and quietness on the combs are very pleasant to see. They defend their hives better against moth and robbers than any other bees I have ever handled, and I think they do nicer work in finishing sections than the common Italians. But as to quantity of honey stored they range from zero to moderate. I have had a few colonies that would hardly gather a living in a good season. Occasionally one finds so-called goldens that are good workers, but with a villainous temper, which I suppose comes from Cyprian blood. I have always found goldens, even the gentlest, very difficult to introduce queens to, the loss by actual count being three times as great as when introducing to common stock.

A queen can not usually be considered tested for honey production before she is two years old. I never like to give a queen credit for good work until all the bees in the hive are of her blood. This does not usually occur before the end of the first season. The second season is the real test of her worker progeny, and we begin to use her as a breeder about the beginning of her third laying season, or the end of her second year. I remember only one case where I was able to use a breeding queen at one year old, on the strength of an unusual record made on the fall flow. I have some prejudice in favor of breeding from younger queens if we had any way of deciding which ones to use.

I like to buy a few queens each year for the sake of introducing new blood, but never use them or their descendants as breeders unless they prove superior to my original stock, which has not happened lately. I have bought no imported Italians for many years, as I have always found them inferior for comb honey. Of other races than Italians, I shall say nothing in this article except that I no longer keep them.

I have said nothing of selection for hardness or resistance to disease, because these things largely take care of themselves. If you want hardy bees, expose them to hard conditions, and only the hardy will survive, of course. But I have never done



FIG. 1.—B. M. Caraway's apiary of 175 colonies all ready for the honey-flow. The uniformity shows the result of breeding.

that, and don't think I ever shall, except where the hard conditions come naturally and can not be avoided.

Some think that swarming, stinging, propolizing, etc., are merely signs of energy, and that we must put up with such bad qualities if we are to get good workers. If I were going to buy a mule I would hardly

pick a vicious kicker in the hope of getting a good work animal. Kicking and stinging are both manifestations of energy, to be sure; but in both cases it is energy misapplied, and our aim in breeding bees is to get the living force of them applied for our benefit.

Newman, Ill.

WHAT I REQUIRE IN A BREEDING QUEEN

BY B. M. CARAWAY

At the outset I wish to say that I have put more thought on breeding for improvement than on any other phase of beekeeping. Every thing centers around breeding, and around breeding centers the queen and her subjects. For one I believe we can improve bees and build them up to a higher degree of efficiency. To prove this I have been selecting my breeders for several years past with this in mind. I select the colonies that store the most surplus honey; and as I have over 400 colonies to select from I have an excellent chance to get the best. All that make a high record I mark, and from these record-makers I select the queens that come nearest my ideal.

I want a breeding queen to be yellow, of good size, and slightly slender rather than with too thick an abdomen. The queen that is a trifle slender is, as a rule, the most prolific; and a queen to be a breeder must be prolific. Her bees must be evenly mark-

ed, must show three yellow bands, must be uniform in size and color (I prefer them of medium size), and they must be gentle. I would not use a queen for a breeder if her bees were bad about stinging. I prefer to have the bees cap their honey with an airspace under the cappings, as this gives the honey a much finer appearance.

The final test comes after the bees from such a queen have graded well in all the above points; and that test is that the queen must be able to duplicate herself in queens—that is, the larger per cent of her daughters must be prolific, must have a slender abdomen, and be yellow. It does not matter whether they are yellow to the tip, but they must be mostly yellow. I select the mothers of the drones with the same care that I select the mothers of the queens. This is very important.

Did you ever notice how much bees in the same hive vary in size? A queen that pro-

duces bees of all sizes does not suit me for a breeding queen, for it could hardly be expected that her queens would be all of the same size. It costs a queen-breeder no more to use a breeding queen that produces queens of regular size and color. However, no one must expect to get all good queens of regular size and color, even from the best breeder in the world, unless the cells are built in a colony that is full of young bees; and they must have a natural honey-flow or else one as near natural as possible, brought about by stimulative feeding.

One colony should not have more than 18 cells to build at one time. The bees will build more than 18, but some of the young queens will probably be undersized or off color. Furthermore, unless the cell-building colony is strong and composed of many young bees, even with 18 cells there may be some undersized virgins. This condition will be found more often in case of a cell-building colony that has too many cells to build at a time. The bees can not care for all of the cells properly, and the outside ones suffer for warmth and food while the cells near the center have every advantage. Nearly always the small virgins come from these outside cells.

Fig. 1, accompanying illustration, shows one of my apiaries—175 colonies in all—and they were ready for the honey-flow. Every hive was full of bees from top to bottom, and from one side to the other, excepting a few containing nuclei that I had formed a short time before for increase. This proves that it is worth while to select a queen for better bees.

I much prefer that all virgins should be mated and laying by the time they are ten days old, and not over twelve at the most. Virgins that are not mated before they are twelve days old make poor queens, as a rule, and are likely to be drone-layers, or

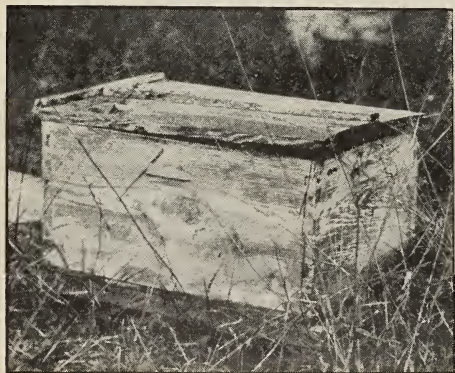


FIG. 2.—A neglected colony in a neglected hive is not a good business proposition.

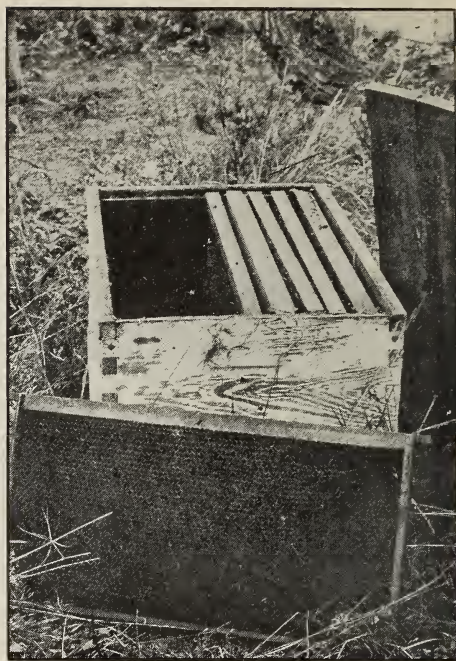


FIG. 3.—The inside of the hive shown in Fig. 2. A mere nucleus at the opening of the honey-flow is not in condition to do more than build up to full strength by fall.

else will be superseded in a short time. This is not always true, but I believe it is the rule.

In any apiary where the colonies are headed by queens that are reared from any queen that gives pretty bees regardless of other important qualities, the result will be about as follows: One-third of the colonies will get a good crop of honey, one-third will get about half a crop, and the other third will just barely live, and may have to be helped by the good colonies. I do not think such bees pay. In such a case I would recommend the purchase of a good breeding queen from some queen-breeder that has good bees, and head all colonies with good vigorous queens reared from this one breeding queen. There will then be another story to tell the next season. Of course, the virgins must be mated to good drones. There may be a few queens in the last class mentioned above that will prove to be very good queens the season following; but I do not advise placing much dependence on them. I would recomme. superseding all such queens.

Figs. 2 and 3 show how some people keep bees. Can any one expect such a little colony to get any surplus during the next honey-flow? The bees will do well to build up to a full colony and get into condition to

go into winter quarters the following fall. No matter how good the queen is, she could not possibly build up so small a nucleus to be ready for a honey-flow in the spring.

These pictures also explain the great difference in the amount that some colonies store. All must be strong if one expects to get any surplus honey during the honey-flow. The colony that has plenty of good winter stores and some left over when the next honey-flow arrives is the one that will make the most surplus. Such a colony is in ideal condition to winter perfectly and be ready with the "tub right side up" when the next honey "rain" comes. This is the kind of colony that counts, and better breeding helped to make it what it is.

After breeding by selecting I find that

the poorest of my colonies are ahead of the best of those belonging to beekeepers who have not paid any attention to the question of breeding. Yes, every once in a while some one says that we can not improve on the average strain of bees—that the bees will revert back to the starting-point, etc. I do not find that this is the case after ten years of careful selection from the best. When I first started I had little black bees. Later on I ordered several breeding queens from the most noted queen-breeders in America. I also got some imported queens, for I wanted the best that money could buy. Please understand that I am not trying to breed a better race, only a better strain of the old three-banded Italians.

Mathis, Texas.

SUCCESSFUL BREEDING OF QUEENS DEPENDS ON A GOOD MANY THINGS

BY W. D. ACHORD

A queen reared from the egg or from the young larva, in a full-sized cell, and supplied with more royal jelly than she will consume, I call a normal queen. Such queen, I contend, will give good results in honey, and she will live, perhaps, two or more years. She will also be large and strong. An egg or larva of the same age in a *small* cell supplied with more royal jelly than can be consumed will result in a small queen. Nevertheless her colony will give good results in honey, and she will live, perhaps, two or more years. An *old* larva in a full-sized cell, supplied as above, will result in a full-sized queen, but her colony will be no good for honey, and she will live but a short time. An *old* larva in a *small* cell, and *not well* fed, will result in a queen not so large nor as good as the last one mentioned, and she will soon be dead. What is worse, oftentimes the bees will fail to supersede her successfully. The last two queens mentioned will not commence to lay as early as the first one. These conditions often prevail when colonies are left to rear their own queens.

In the foregoing I have ignored the stock or strain of bees. Do I believe there is a difference in the stock or strain? Yes, I believe that "blood will tell" in bees as surely as in people, horses, or hogs—if we can control the mating. There are a great many things for a queen-breeder to remember when trying to produce nothing but good queens—the stock to select, the way the work is done, the locality, etc. Here I confess that I do not confine my practice to noticing all the minor details when se-

lecting my queens to breed from. I have five outyards, 600 colonies in all, which I run for honey. On the hives I mark the age of the queen, the amount of honey taken, whether the colony tried to swarm, etc. This I have done for the last three years, and from these colonies I select the queens to use in my queen-yard at home for drone mothers as well as for queen mothers.

In color I prefer the dark three-banded bees, and they must not be wanting to sting all the time, though I do not expect to rear a stingless strain. I find that, if bees do not have energy enough to resent an insult, they do not have energy to gather a big crop of honey.

Cell-starters, finishers, and nursers must be two-story colonies, the hives being filled with bees from top to bottom and side to side. Not all colonies in the same yard are the best cell-builders. On this account poor queens may be reared if one does not select the cell-builders. The larvæ must be young, and supplied with more royal jelly than they can consume.

Nectar must be coming in every day for best results. I much prefer natural nectar to artificial feeding. Some localities are good for honey but not for queen-rearing. Others are good for queen-rearing and honey, while still others are good for queen-rearing but not for honey. It is also true that some are good for neither (this is something that I have experienced as well as read about). A commercial queen-breeder should have a good locality for his business or else quit the business.

Fitzpatrick, Ala.



J. P. Moore, Morgan, Ky., the well-known queen-breeder and honey-producer.

J. P. MOORE AS HIS ASSISTANT SEES HIM

BY J. E. JORDAN

To the readers of GLEANINGS who have not had the pleasure of knowing Mr. J. P. Moore, the queen-breeder, I will try to give a correct idea of him. If anybody should come in at the Moore farm between the hours of sunrise and sunset, and want to talk to J. P. (as he is known) he would have to keep moving all the time. He is on the go constantly, and can keep at it longer than any other man I ever knew. He is 53 years young, and looks about 38—hair slightly tinged with gray, and inclined to curl.

I really believe the reason for his activity and youthful appearance is on account of his good care of his stomach. Fruits of all kinds, either cooked or uncooked, come first

in the morning and last at night. Wheat, cooked and uncooked, is also a favorite with him.

Mr. Moore does not have much to say to any one; but when a visitor begins to talk bees he has hit a subject that he can talk on from morning till night. It is a hard matter to ruffle his temper. He is the best-natured beekeeper you ever saw. Why? Because he has the best-natured bees that you ever saw.

The secret of his success is due to his ability to *keep at it* so long at a time. Cleanliness is another of his great traits; and every queen that goes out or every can of honey that is sold, may be depended on in that line.

THE DANGER IN BREEDING EXCLUSIVELY FROM ONE STOCK

BY W. A. H. GILSTRAP

One of the first questions to puzzle the breeder of bees is a choice between breeding one strain of bees or bringing breeders from distant breeders. Like the Irishman, I say, "Of all the exthrames, give me the middle one."

To "line breed" fixes certain characteristics as no promiscuous breeding will. By

taking a few first-class colonies and keeping their increase from crossing with other bees one will in time produce a strain of bees with a type different from any he is likely to find. It is surprising how many distinct strains are built up this way.

It might do to let the matter of selection stop at that if vitality could remain unim-

paired without introducing new blood; but it is bound to cause trouble sooner or later. The first defect of continuous breeding of one stock, so far as I can learn, is a proneness to paralysis. Why? The nerves are deranged, just as in some of the royal families of Europe. Paralysis is a nervous disease. Some say in-breeding can not produce bad results in bees; but I am convinced it has seriously deteriorated one good strain of Italian bees.

My experience with bees has been confined to stock from one or more breeders in each of eleven or more States and Italy. The only varieties tried are Carniolan, Cyprian, Syrian, blacks, and Italians. The Italian from Italy and the yellow descendants of the same, bred by many in the United States, are so little alike as to be in entirely different classes for practical results. Both

dark and yellow Italians have good and bad strains; but the best strains of either class are not necessarily best adapted to every locality.

It is possible that some localities may be found where some other bee is better than the Italian; but such locations are scarce, in my opinion. Ordinarily my belief and practice are to ascertain by actual experience which is most satisfactory—the light or dark Italians; then test individuals of promising stock before raising drones from them. Enough outside stock should be infused in the strain to keep up vigor; but radical changes should be avoided. While a breeder may be trying ever so hard to improve his bees he should remember that others are trying just as hard to improve the same general type of bee.

Modesto, Cal.

IS THERE A TENDENCY ON THE PART OF BEES TO REVERT TO THE ANCESTRAL TYPE?

BY L. W. CROVATT

There was a case experienced in queen-breeding in my home yard last summer when eggs hatched in the hive domain of a golden queen, and grafted four days afterward by my own hands, developed several queens of a color as dark as the average German strain, and I have been casting about without satisfactory results for the logical reason.

Some may say that I got queens of black color from the German brood. This is not the case, though, for the cells were grafted. The colony from which the larvæ were taken was undoubtedly Italian of a very perceptible marking; and to clinch the proposition I will state that the cell cups were all on a stick—of the artificial or wooden type—and there wasn't an egg from the former German queen tolerated until I could breed Italians in the hive. In fact, I had removed every comb excepting a few which had well-sealed brood in them.

Now, what I want to know is this: Could the golden queen from which I was grafting have in any manner, through a previous generation, been by blood related to some German race? If so, would there have been such a sudden and violent reversion of type, and the young "mother bees" have so changed in color from the time of grafting to hatching as almost to be mistaken for a German?

Candidly, the thing has stuck in my mind, and I have often studied over the proposition; but it is seemingly no clearer to-day

than it was when, in the mild mid-afternoon sun of the balmy summer day in Dixie, I removed my queen-nursery cage from the cell-building colony. The cells had been placed in the Titoff nursery cages on the eighth day to avoid loss, as I was busy with other matters and hardly expected to reach the ripe cells in time to prevent a youngster emerging and "wrecking" the remaining cells.

Surely it looks like atavism beyond peradventure; but who is qualified to say if this is correct?

Savannah, Ga., Feb. 11.

[The above was referred to Dr. Miller. His reply follows.—Ed.]

So far as I know, there is no reason why atavism should not occur among bees as well as among other living creatures. It might also be expected to occur more readily in your golden stock than among three-banders, since golden stock is something comparatively recent, and not so nearly a fixed type as the three-banders. Moreover, it is more likely that in previous generations some black blood had worked into the golden than into the three-band stock.

You do not say positively; but from your saying "several queens" I take it that all the queens in that particular lot were dark. I hardly think atavism is likely to occur in such a wholesale way—more likely there would be a single one of the lot showing variation.



Uri Hammond, Vivian, Louisiana. Master Hammond has "kept bees" in two States.

You speak of "a sudden and violent reversion of type . . . changed in color from the time of grafting to hatching." I do not understand that a change occurs during that time from atavism, but rather that atavism dates back to the earliest time of the germ. And yet it is quite possible that the change might have occurred in color during those few days; for cool weather, scant food, or some other circumstance may sometimes make the royal progeny of a pure Italian queen quite dark in color, when her previous and subsequent progeny appears as yellow as herself. But that's not atavism.

After all this has been said, it remains an open question whether there was any

black blood at all in the case. There may or there may not have been. You do not say, for you say nothing about the worker-progeny of these dark queens. And that's the deciding factor. If the worker-progeny be mixed as to the matter of yellow bands, the queen can not claim to be pure, no matter how yellow. If the workers are uniformly three-banded, then the queen need not hesitate to claim purity, be she black as night. Some queens direct from Italy are as dark as queens of black blood, but their workers are all right as to color.

You may have had a case of atavism; but it is not at all proven, and is quite doubtful.

C. C. MILLER.

Marengo, Ill.

FOUR HUNDRED QUEENS FROM ONE COLONY

BY ARTHUR C. MILLER

In a recent issue of GLEANINGS I spoke of one colony of bees producing about four hundred fine queen-cells in one season, and being a rousing colony at the finish. The editor tells me that many of his readers want the particulars, and no wonder they do; for either I told a "whopper" or else have something worth dollars to the fraternity.

It is worth dollars to all who will master it; but I tell you at the start it is not for the careless man nor for the man who fails

to do the right thing at the right time in the right way. On the other hand, it calls for less work, less care, and less attention by many times, than it does to produce the same number of cells by any other system. Not only is its cost in labor much less per cell, but its cost in colonies is very markedly smaller.

According to commonly accepted belief, a colony will not (or can not) construct more than about one dozen good cells at a time, and should never be used to construct

another batch until it has been returned to its brood and allowed to remain thereon until well re-enforced by more young bees. This is speaking of the general custom—individual systems, mayhap, modifying it slightly. In other words, it takes the work of about thirty colonies to produce four hundred cells by commonly accepted methods; or using one colony six times during a season means that five colonies must be withdrawn from honey-producing, and be devoted to the task of raising four hundred queens. The cost in dollars and cents you may figure for yourself.

The improved system is any thing but new in most of its details; but it does have a few features peculiar to itself, and on these features its success to a considerable extent hinges. It is known hereabout as the "Fuller system," having been worked out and brought to success by Mr. O. F. Fuller, of Blackstone, Mass.

It is based on the old idea of having cells built in a colony with a laying queen, cells and queen being kept apart by queen-excluding metal. Mr. Fuller's early efforts followed much the lines laid down by Mr. Sladen; but he soon began to change and modify in his efforts to secure more uniform results, and it is to some of these changes that his success is due.

His mechanical appliances are few. He uses a double-walled chaff-packed hive wide enough to hold twelve frames, using this size for convenience in manipulation. The hive has a tight partition of queen-excluding metal so placed as to make one compartment ample for easy handling of four frames, and in this chamber the queen is kept. Furthermore, the entrance to this part is protected by the same sort of excluder metal. The entrance to the cell-containing part is *not* so protected, and in this feature his system is the opposite of all the others, and to it I ascribe much of his success. Reverse it and his success is no better than by any of the older plans of a similar nature.

His other appliances are the common wooden cell-cup holders, metal bars punched with holes to carry the wooden cells, and frames in which these are swung, so ready inspection and handling are secured. So much for the equipment.

The procedure is as follows: The colony is made *strong* if not already so. It is strong in the fall, has a young queen, and is wintered with the dividing partition out, so usually it is booming in the spring. If it is not, it is made so by the addition of brood or young bees or both. When about ready to begin cell-raising, the partition is

put in, and the queen is shut into her compartment and given four combs, choosing those which will give her some chance to lay, but not much. On the other side are several combs of brood, honey, and pollen. At the start of the season Mr. Fuller sometimes helps matters along by filling this compartment with combs of emerging brood by adding two or three from other colonies. At the end of a week all eggs in the "cell chamber" have hatched, all larvæ are too old to be troublesome, and some queen-cells may have been started. The combs are carefully examined, and all such cells are destroyed. One comb is now removed, and a frame holding the cell cups put in its place. In it are two dozen or more of the wax cups.

Now begins the important part; and unless these details, which I will italicize, are carefully observed, failure will pretty surely follow.

Put the cups at least *one comb-space from the partition, and never fail to have a comb between cells and the partition*. In a few hours, more or less, a dozen to twenty of the cups are grafted and returned to their places, and *every other day* more cups are grafted. As they reach maturity they are slipped into cages, hung in the same chamber, and the cells are allowed to hatch there if no nuclei are ready. The presence of caged virgins has no effect on the cell-building. As the season advances and the number of cells increases more room is given in the cell-chamber, if needed, by removal of a comb or two. If additional frames of cell cups are used, be sure to have a comb of brood between it and the other cell-cup frame.

As combs in the cell-chamber become empty of brood, they are exchanged for combs of sealed brood, either from the queen's compartment or from some other colony. *Combs containing eggs or young larvae must never be put in the chamber with the cells*. To make this easy, Mr. Fuller is accustomed to keep a few frames of brood in an upper chamber of some colony, and over an excluder, getting them from the queen's chamber or from some other colony.

The manipulation of the queen's chamber is important. *She must never have much room for laying*. Mr. Fuller often had trouble in the colonies until this was learned. In other words, *the colony is always full of young nurse bees and short of babies to feed*. Supersedure conditions!

To do this to the best advantage, it is necessary to draw some of the sealed brood from other colonies, so that, strictly speak-

ing, one colony does not alone and unaided do all the work. But a comb of brood now and then, taken from a nucleus, matured over an excluder and put into the cell-building colony, is really turning waste material to profit, and it does not take many such during the season.

Sometimes a colony refuses to "play the game," and has to be discarded for another. Why they behave so we do not know.

If honey is coming freely the cell-building colony will put up a surplus, and a heavy flow is really a nuisance, as it clogs the combs of the queen's part as well as the other. If the flow is very light or intermittent, feeding is necessary. Mr. Fuller

keeps a candy-feeder on top of the queen's compartment, all the time, as a safeguard.

In such hives he has raised fine cells in April and as late as mid October. He has had as high as eighty cells in such a colony at one time.

The cell compartment is the very finest place to keep drones. He had several hundred in one hive on the 21st of last December. I'm of the opinion that the presence of drones, and their liberty to fly, is a great help in his system, and I know that I like to have a dozen or more in each of my baby nuclei. Drones are more of a help to us than we have supposed.

Providence, R. I.

THE CHIEF POINTS TO CONSIDER IN THE SELECTION OF A BREEDER

BY J. F. ARCHDEKIN

I have made no new discoveries in the art of queen-rearing, having confined my efforts to orthodox methods. Of course, I have had my share of novel occurrences which call for special treatment; but I will pass to more important things.

The first thing to consider is the breeder. Briefly, a first-class breeder is a heavy layer. Her colony winters well, the bees are gentle to handle, and are hustlers. These are the principal points to keep in mind. If these can be combined with some others, so much the better. The offspring of some queens cap whiter than others; these are to be favored. Some colonies propolize more than others. This trait is not to be favored.

As to her personal appearance, the queen should be fairly large, and should have a thrifty look. While she should be active she should not display this agility by running over on the other side of the comb while you are looking at her. Unless unduly disturbed she should continue laying while you watch her. She should be well marked, and the abdomen an even color throughout its length. If one has a queen which conforms to the above qualifications he may be sure he has something very desirable. I have reference to the Italian bees, although the above is probably true of most of the other races.

METHOD USED IN REARING.

After trying various methods for building cells I have adopted the upper-story system. As it is necessary to have a strong colony to get large well-fed cells and vigorous queens, the above answers the requirements perfectly. A double-story colony is bound to be strong. I use a queenless colony for accepting the freshly grafted cells. The grafting is done in early morning or late afternoon.

The morning grafts are transferred to the cell-building colony in late afternoon, and the afternoon grafts changed the first thing in the morning. By this means I have been enabled to get a larger number of cells accepted than by any other method except in colonies which are preparing to swarm. These latter are not available all the season.

Should a cool spell of weather come early in the season the cells in the upper story will be safe, whereas they might be lost in the ordinary one-story hive. It is important (at least comfortable to the operator) to use gentle colonies for cell-builders. I think this has some influence on the temper of the offspring of the embryo queens.

QUEEN INJURED LESS IN THE MAILS IF NOT LAYING HEAVILY WHEN SOLD.

For mating I use twin mating-boxes. The frames measure $5\frac{1}{2} \times 7$ inches, and each side takes three of them. This allows one to keep a fairly large number of bees in each nucleus; and if there is a good flow these little colonies will often become honey-bound. On the other hand, if many of the bees are lost through following the queen on her mating-trip the loss is not serious and is more readily replaced than with full-sized nuclei. I have found these latter very bothersome about swarming out. Of course, the plan has its drawbacks, but so have the others. To me it is a method of turning out a first-class product at a minimum cost.

Queens mated in small nuclei will always ship well because they have never had an opportunity to become fully distended by heavy laying. Queens that are laying heavily are in grave danger of being injured in shipping if they are not slowed down by

some means before being sent out. Then it is so much easier to find the queen in these little colonies that the time saved in caging amounts to considerable. It is very annoy-

ing to have to search any length of time for the queen when one is in a hurry. Taking it all around, I like the plan very much.
St. Joseph, Mo.

QUEEN-REARING ON THE ISLAND OF CYPRUS

BY M. G. DERSVISHIAN

Until within a very few years I obtained my queens from natural swarms only, and I used to have a large percentage of swarms every year in April and May. The majority of these queens were small in size, and weak. The last two or three years, with the help of GLEANINGS, I have adopted up-to-date swarm-controlling methods, and during two seasons I have had only two or three natural swarms from between fifty and sixty colonies. This improvement has been profitable, both for the production of honey and for vigorous prolific young queens.

Years ago the colonies which swarmed did not yield any honey, and those which yielded honey could not produce any queens—that is, they could not do both together. Under the present scientific methods I make one or two of my weak colonies queenless, and commence feeding. The bees start queen-cells which I destroy before they are sealed. I give cell cups grafted from my best colonies having fine long queens. The next day, or about thirty or forty hours afterward, I remove these cell cups into my breeding colony which I especially prepare for that purpose as follows: Early in May I create a very strong queen-rearing colony, and I change the unsealed larvæ from this with sealed brood from other colonies, so that in the lower story there remain two combs of honey and pollen, one on each side, two frames having full sheets of comb foundation, and six combs of hatching brood. I confine the queen of this queen-rearing colony to the lower story of ten combs with a queen-excluder. On top of this excluder I put another full-sized story which I fill with eight combs of hatching brood from other colonies. I commence feeding with thin syrup or (preferably) honey mixed with water. Two or three days afterward, when most of the brood has hatched, I insert in this upper story cell cups grafted from my best colonies having long year-old queens. (These cells were first accepted by other queenless colonies, and then transferred to this queen-rearing colony). I continue feeding regularly every evening.

The number of the cells given does not

exceed twelve, as I have reason to believe that, the fewer the cells, the better the results obtained. By accident last September I discovered that a moderate-sized colony out of which I had taken a queen started a single queen-cell, and for an experiment I did not replace this cell with one raised under the fore-mentioned method. When the cell was sealed I found it was the largest I had ever seen, and the resulting young queen was correspondingly larger. I intend to keep her for the purpose of breeding. When this colony started the queen-cell in question the bees were fed every evening.

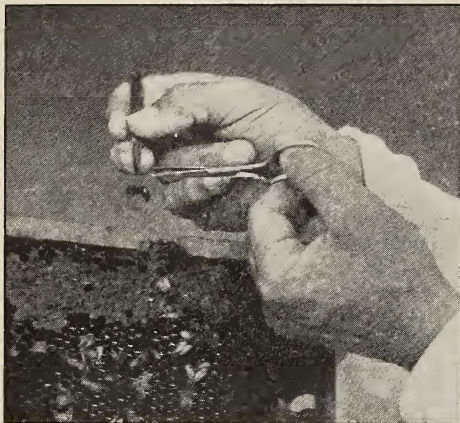
Some of the queen-rearing colonies I divide into nuclei of three combs each, and give each lot of bees a queen-cell. I keep these nuclei about two feet away from each other, all in one place, and confine the bees in each nucleus for two or three days in order that they may not return to their old stands. On the third day after sunset, just before dark, I remove the wire screens from the entrances and put in front of each nucleus a board a foot square, slanting against the front in such a way that the bees when they come out may bump their heads against the board. Each board is painted a different color—red, white, green, blue, black, etc., the object being to make the queen and her escorts mark well their new home. I keep these boards in place for eight days. Before adopting this plan my percentage of loss of queens was great, but now hardly a queen enters the wrong hive.

I leave the queen of this breeding colony with three or four combs of her hive, and then refill the lower story and the top story with hatching brood from other colonies so that, in a few days, this breeding-hive again becomes crowded with young bees. After this I again give cell cups started by other queenless colonies as described above. As soon as the cells become ripe in the queen-rearing colony I remove them into the nucleus hive described, from which the queens are taken later on to be mailed. It is understood that the nuclei as well as the large colonies are all fed regularly with a small quantity of thin syrup every evening. I never sell queens from the nuclei until they have been laying for about twenty days, so

that they will have laid a large number of eggs and I have had the opportunity of observing the sealed brood.

HOW I PICK UP QUEENS.

Formerly I used to pick up queens with my fingers as I was taught by Mr. Frank Benton when he visited this island many times in the 80's. For about nine years, however, I have been using a pair of watch-maker's tweezers, about three inches long,



M. G. Dervishian's method of catching queens, for caging or clipping their wings, by means of a jeweler's tweezers.

for taking up the queens by the wing, and for putting in cages or clipping. I have found the use of these tweezers more practical than the old method of catching queens with the fingers. Besides being more convenient, there is then no contamination by

reason of any taint or odor to the queen; and consequently a queen that is clipped, for instance, runs less risk of being balled by the bees. The catching and clipping of the wings of a queen can be accomplished in three or four seconds. The queen, being seized by one of the wings, is held about an inch above the comb; then with the other hand the wing is clipped by the use of a pair of small scissors, and the queen falls back where she belongs. I have taught my sons to handle queens with their fingers, but they prefer the tweezers, as it takes less time and is easier. The bees do not get frightened as they sometimes do when one picks them up with the fingers.

DRONE-REARING.

The selection of the best drones in a scientific queen-rearing apiary is of great importance. I have adopted a plan similar to that explained in "Scientific Queen-rearing," by G. M. Doolittle. I have a drone-cell comb-foundation machine with which I manufacture enough comb foundation to supply all my colonies with a full sheet. This I insert in the middle of the brood-nest; and these drone combs, when built, are filled with drone eggs from which I get fine large drones from April to September inclusive. I take great pains to destroy all drone brood reared in worker cells or any from unfertilized queens that may have been laying. I also take the necessary steps to prevent laying workers.

Drones of small size, if any exist by accident, are at once trapped and destroyed. Such drones result on account of the absence of sufficient drone comb in the hive.

Nicosia, Island of Cyprus.

DOES A QUEEN MEET A DRONE FAR FROM THE APIARY?

BY G. W. HAINES

My son and I, with a little help, are running six apiaries. It has always been my practice to keep a fine strain of bees that are good honey-producers, and to work for the extra ton of honey, letting the other fellow raise and sell the queens. We often hear of a beekeeper who is looking for an out-of-the-way place to raise queens—some island or some forsaken spot where neither man nor bees are found.

To my way of thinking, a queen on her flight never gets out of the lot where the bees are kept. At my home apiary I have kept from 200 to 220 colonies for a number of years. Here I raise a few queens for my own use at home and for the out-apiaries. I have tried all ways, and have spent a lot of time and money in small mating hives

and boxes, but I am now using a regular eight-frame Langstroth hive with a division-board in the center, and three Langstroth frames on each side. The bees on one side use the entrance in front, and those on the other the entrance in the back. At any time honey or brood can be given either nucleus from any other hive, and in the fall the two nuclei can be united. Of late I have had about fifty nuclei for queen-rearing; but my son, who has had an unusual attack of the bee fever, thinks we ought to have 75 next season and keep more bees.

My home apiary, with our 200 colonies, is at the bottom of a large hill that slopes to the north. By standing at the south side of the yard, and looking north against the hill when the sun is just right at my back,

it is a surprise to see the great cloud of bees as well as of drones in the air. On several occasions, when queens were about to mate, I have watched them in this way. Last summer I called my son to watch a queen, and soon three came in sight at one time with their flocks of drones. It reminded me of a flock of fifteen or twenty black-birds flying around the lot. The queen in each case was ahead, and the drones all flying very close after her at a far greater speed than that attained by the workers. They would fly back and forth around the yard; and whenever they circled high enough to get above the hill we could not see them against the bright sky.

I wish that some of the queen-breeders would give this matter a little time if they have a yard located just south of some big hill or woods. A building or a few trees do not afford enough of a background, as the bees are soon out of sight.

If a queen-breeder takes the necessary care in the selection of his drones as well as his queens I will venture that a queen

will seldom get out of an ordinary field where bees are kept, if there is a crowd of drones flying every fine day.

Mayfield, N. Y.

[If there is a cloud of drones flying near the apiary we would grant that a queen would seldom go very far away from the apiary to mate; but suppose there are a good many other colonies within a mile, say, of the apiary in question. Can you be sure that the cloud of drones in the yard is made up entirely of your vigorous stock selected? As we have reported before, we have observed drones collecting in "schools," and if there is very much of an uproar when these noisy fellows get together it is quite possible that other drones from hives located within a mile or half a mile may be attracted thereby. In a breeding-yard composed, say, of Italian stock exclusively, but located in a territory where there are numerous black colonies in small apiaries near by, the proportion of purely mated Italian queens is much lower than in the case of a yard that is more isolated.—ED.]

ARE THE BEES OF AN EXTREMELY PROLIFIC QUEEN AS HARDY AS THEY SHOULD BE?

BY DAVID ROBERTS

Can a queen be too prolific? It is evident that a colony must be strong if it is to do well, especially in the super. But what is strength? Is it always mere numbers? In my experience I often find my most populous colonies surpassed as to surplus by smaller colonies. As a matter of fact, "there is no gain without a loss;" and is it not possible that this surplus of numbers in the brood-nest may become a deficiency of energy in the super? Indeed, it will unless the apiarist interferes; and it is questionable whether, even after these bees have been distributed to the best advantage, they are of much value, as their energy has been greatly "diluted."

It is true that "in union there is strength;" but the strength of that union depends on that of its components. In the inevitable struggle for existence of all creatures does not an increase in the reproduction of the species indicate a decrease in the vitality of the individual? and can one not read in this extra egg in question a prophecy of earlier death to its occupant?

What causes this prolificness in the queen? One factor, and not the least, is in-breeding. It is a biological fact that mating individuals of distinctly dissimilar

characteristics produces a progeny less prone to prolific reproduction. Would not, then, a cross between two strains of different characteristics produce the desired hardihood and longevity? It is true that prolificness would be retarded, and, possibly, beauty be lost; but what of it? Are these the vital factors which reimburse the bee-keeper for his labor? Such a cross has been favored by the lights of beedom in the past, and is still advocated by many of no mean standing. However, as the first cross produces the salutary effect, the continued hybridizing is to be deplored, for it causes too great a reaction—that is to say, it tends too much toward sterility.

Instead of trying to eliminate this dissipation by the continued hybridizing of colonies already crossed, it would be better to select those from which to breed that do not show this riotous tendency at all—colonies that have established their worth as honey-gatherers; colonies that one knows fairly well, and that will respond to some general system of manipulation. Mr. Doolittle, p. 144, March 1, 1913, gives valuable hints on how to select such colonies, and I heartily agree with him.

Knox, Ind.

Heads of Grain from Different Fields

Few Goldens Found True to Name, but Those Few were Good Workers

It is to be regretted that there has been so much depreciation of golden bees in the columns of the bee-journals. First of all, I want to say that I am not a golden "bug." Always I want yields; and where my bees do not give yields they are discarded. Mainly the cause of the feelings against goldens is the breeders who persist in breeding for color to supply the demand for yellow queens and leave yields to take second place in the qualities of their queens. Some of the greatest beemen in the country prefer very yellow bees. Last year Dr. Miller's yellowest bees gave the best yields. However, that may not be the leading attribute in his bees, and I don't know that he advances any such theory.

Last year I spent about \$100 buying golden queens of various breeders in the United States, mainly to see how yellow their product was, and to try them out for yields. I never bought less than six at once, and gave them a thorough trial. Of course, I did not try out all the goldens in the country, by any means. However, out of sixteen breeders I found just three whose queens would really pass for decent goldens, and all three of these strains proved good yielders. To me this proves too much breeding for color alone. Can any thing more surely kill the golden demand?

In querying advertisements, and writing for prices to these breeders and other beekeepers, I found a most lamentable lack of even common business decency in the answers. In one case I waited 22 days in the height of the season for prices of queens. The breeder lived 22 hours from me by mail, I found by investigation. Many dealers have told me that beekeepers are often very unbusinesslike in answering queries for them. Seemingly these men, particularly queen-breeders, are afraid to figure a little service cost against the gross profit made on their queens. (Several breeders wrote me letters containing misspelled words and mistakes—some on the typewriter that would have made me weep if one in any other business went after my patronage in such a manner.)

For my location, goldens are best. Three-banders are nearly as good. I have never tried other races of bees. However, it is lamentable that some breeders send out "goldens" which are hardly more than quite yellow three-banders. Goldens should be yellow all but the very tip. I never received goldens from reliable breeders which weren't so marked. Many times I know golden breeders are asked if there is Cyprian blood in their bees to give the color. There may be in some; but the breeder who can't breed up a yellow strain without Cyprian blood had better go out of business. Certainly he is selling a fake if he uses it.

Common sense will enable one to breed yellow bees by selection. However, they must be where purity of mating is insured. To my notion the yellowest queens should go for queen mothers, while the highest yielders among the yellowest should go for drone mothers. But never a breeder for either purpose should be chosen unless they are well above the average in yield. Patrons will pass up your "dark" queens sold for goldens when they are business-getters in yields. Drone mothers should be the highest yielders, for to my notion, as with chickens, the male line carries the quality of yield better than the mothers. Some breeders keep too many colonies in their mating-yards. There shouldn't be any more than are actually needed in the yard. There is too much likelihood of letting colonies go where there are too many, and where some breed undesirable drones. Every breeder owes that much to his patrons.

Fakirs exist because the buyers don't investigate their claims. The time is rapidly coming in bee-

keeping when the man who doesn't deliver the goods must get out. It is so in yields. It will be true in breeders. Fair business methods deserve patronage, and nobody knows it better than the fellow who once gets stung.

Plainfield, Ill.

KENNETH HAWKINS.

An Extraordinarily Good Colony

I had the best honey crop last year that I have ever seen in this locality. The bees just rolled in the honey in June and July. I had one eight-frame colony of red-clover Italians that would fill a 28-section super in four days when the white-clover yield was at its best. My crop for the year was 675 pounds from seven colonies, spring count. This one eight-frame colony made 17 shallow extracting-combs of honey and 168 4 x 5 sections, most of them fancy. I think that this queen is worth a lot to me. The same colony made seven supers of honey in 1912. The queen was four years old last fall, and the colony has swarmed but once, which was during the first year after I got her. On that occasion, for some reason the queen could not fly, and my son picked her up on the ground and put her in a cage until I came home. I took from the hive a couple of cells that I wanted, and destroyed the rest and put the queen back and she is there yet. She is not clipped, for she has good wings so far as I can see. She is the largest queen I have ever had.

During the four years that I have handled this colony I have been stung but once, and that was when I pinched one of the bees. When the frames are taken out of the hives the bees stick closely to the combs and do not fly around my face. They can be handled without veil or smoke.

There have never been any queen-cells in the hive except that one time mentioned above. All that I do to prevent swarming is to remove the $\frac{7}{8}$ strip at the back of the bottom-board and put a piece of wire screen in its place during hot weather.

Elizabeth, Pa.

AMOS E. MEYERS.

Breeding for Honey Instead of Color

While I am not an extensive beekeeper I breed for honey rather than for color. About the first of June I go through my yard watching the fronts of the hives until I find the one I want. Then I look inside to see whether the bees of this particular queen are gentle and evenly marked, also whether the combs are well filled with brood from top to bottom. Then I find the queen to see whether she is leather-colored with a bit of black at the tip. If so, all right. If not, I look further for one having those markings.

I prefer to have the workers go out of the hive like a bullet, and when they return drop on the alighting-board and hurry inside. Furthermore, I want a queen whose bees enter the super readily, whether producing comb or extracted honey.

Referring to the record of the colony in question I make sure that her bees winter well, and that they do not daub the sections with propolis badly.

It is just as important to have the mother of the drone show these good qualities also.

Cattaraugus, N. Y.

HAROLD W. SCOTT.

Colony Fed Artificial Pollen Ahead of the Others

Rye graham flour may be used as a substitute for natural pollen. In the spring of 1913 I fed a colony of bees rye graham flour. This colony swarmed out May 26, while all the other colonies did not swarm until after June 10.

ADOLPH C. ROSENQUIST.

Parker's Prairie, Minn., Feb. 27.

Our Homes

A. I. Root

I pray that they may all be one, as thou, Father, art in me, and I in thee, that they may also be one in us, that the world may believe thou hast sent me. JOHN 17:21.

I am come that they might have life, and that they might have it more abundantly.—JOHN 10:10.

DOUBLING UP THE COUNTRY CHURCHES, ETC.

Perhaps we could leave out the word "country" and consider for a moment doubling up churches in general—city churches and all. Read the following:

Mr. Root:—We like your Home talks. We wish to ask you a few questions. Is the church of Christ celestial only, or is it a part of the world?

The Comforter is to guide us into all truth. How, then, can Christians differ?

Are not divisions carnal, and classed with the fruits of the flesh?

Do you justify the existence of sects?

Rev. W. L. Beers, of Topeka, Kan., it is said, killed his wife because she was a Catholic. Can you not pray to God for some light on this subject, and give us a sermon on unity?

Guilford, Kan., July 7.

T. & H. SHORT.

My good friends, I presume you have read what we gave on the subject on page 659, Sept. 15. While I am hoping and praying that there may be a "doubling-up" instead of having a few more churches started every little while, I think I realize somewhat the difficulty of rushing things in this direction too fast. There are, all over the world, people who are, comparatively speaking, good and earnest Christians who probably will not be persuaded to go into this doubling business. I am inclined to think it is the old and gray-headed people, mainly, who stick so tenaciously to their own particular denomination. Some years ago in Northern Michigan my good friend Rev. A. T. Reed and I visited the homes round about Bingham, Mich., in the endeavor to collect the scattered Christians and revive the church in that community that seemed to have gone to pieces. The greater part of them absolutely refused to drop theological differences and unite in Christian fellowship. Almost the only hope was among the younger members of the Sunday-school who have never got hold of doctrinal points. With childlike innocence—that is, innocence of the things that our fathers and mothers had quarreled over—they came with enthusiasm, and in a little time the community that had open saloons and baseball on Sunday was made over. I told you that, during my recent visit, the saloon had died out for want of patronage, and a very good congregation met in that little Bingham church.

Now, my good brothers, let us be careful about hurrying matters to such an extent

that we stir up again old disputed points. As things are now, I am inclined to think it better that there should be different denominations. You probably know how often good people differ in regard not only to theology but questionable amusements, etc. Some are loose in their ideas, and others are too strict, and quite a good many will tenaciously stick to unimportant matters. While this is true, is it not well, at least to a certain degree, for people who think alike to get together and hire a minister who believes and thinks as they do, but who are willing, notwithstanding, to leave minor differences, and go to work unitedly for temperance, for sanitary measures, for good roads, and for good government, etc. Our good friend E. E. Hasty, one of our old shining lights in bee culture, will be remembered by our older readers. He went so far as to insist that sects be done away with entirely, and let every man worship God according to his own notion. Let us accept the fact that there are almost no two people exactly alike. God, in his great wisdom and love, has probably thought best to make us different; and what would the world be—how could there be such a diversity of work now going on as there is, were it not for these differences? As it is, there are a multitude of different things for us to study up and work out. We can, each one of us, have a different hobby; and it is really a delight to me to see one man or woman take up one thing and another something else, and push it to its fullest development. For several years good people laughed at me, and were almost afraid to trust me because I was crazy on bee culture; and yet God has permitted me to live long enough to see our institution buy and sell honey to an extent that I would not have believed possible then. In spite of the high cost of living, and other difficulties that block our way, there is room enough for all, and peace and plenty for all, if we are only willing to reach out and accept it from the hand of the loving and gracious Father.

EMPTY PEWS IN OUR CHURCHES; A SUGGESTION AS TO THE CAUSE.

Dear Mr. Root:—I am enclosing a clipping from one of the New Brunswick papers which I thought might interest you. It shows that all of our preachers are not so busy reading ancient history or studying Greek that they forget that they are living in an age that has problems of its own. I wonder if the reason for the empty pew is not to be found in the fact that many of our ministers are so busy search-

ing the literature of the ancients for brilliant illustrations and high-sounding phrases that they do not recognize the needs of the present day. I believe that, if our ministers would burn half their books, study the newspapers, and stick their noses out of their studies occasionally, they would begin to preach sermons that would hold the multitudes. At any rate, St. James church here was packed so that there was hardly standing room last night, simply because Rev. Mr. Yard had announced that he would reveal his discoveries, and the discoveries were those that concerned the people. Mr. Root, I believe that, if we had more such preachers—men who can fit religion into politics and everyday life, the world would grow better many times faster than at present.

HARRIS T. KILLE.

New Brunswick, N. J., Oct. 27.

My good friend, I have for a long time been "hungering and thirsting," if that expression is not too extravagant, to hear our ministers touch on things of the present day a little more. Just now, however, here in our Ohio home, as you may judge from the two sermons I have given in these Home papers, my wish has been gratified. Perhaps I should explain to our readers that the quotation alluded to by Mr. Kille comes from the New Brunswick, N. J., *Times*. The pastor mentioned, Rev. George W. Yard, said in his sermon, "A howl went up to the ceiling when I asked the ministers at a convention they held, to help me in this fight, so I started out single-handed." On Sunday and Sunday night he visited 80 saloons. Only 6 out of the 80 were closed up according to law. He tells in his sermon where he went, what was going on, and mentioned names. No wonder that St. James church was "*packed so there was hardly standing room.*"

Thou shalt not kill.—EXODUS 20:13.

We clip the following from the *Cleveland Plain Dealer*:

THE PENALTY FOR MURDER.

Twelve years ago a young tramp was found guilty of a most revolting crime. He had drifted from the east, a worthless derelict. An old and crippled watchman took pity on the tramp and repeatedly befriended him, sharing his meager lunches with him, and giving him shelter.

In return for this kindness the youth deliberately planned the murder of his benefactor. He waited till pay day, and then beat the old man to death with a coupling-pin, stole his money, and fled. He was apprehended, and charged with murder in the first degree.

The verdict of the jury was an utterly unjustifiable compromise—murder in the second degree. If the defendant was guilty of any crime it was first-degree murder; but the jury could not be brought to send him to death. The death penalty, as established by Ohio law, was responsible for a verdict which was wholly at variance with the facts. And yesterday, after having served a dozen years, the prisoner was released from the penitentiary, paroled by order of the Board of Pardons.

When I first saw the above I could hardly keep still. It comes right on the heels of the report of another murderer who has

been pardoned. You may recall a temperance detective (Etherington) who was cruelly strung up by a drunken mob at Newark, Ohio. The leader of that mob has been "pardoned out" after serving only three years in the penitentiary. Has this young tramp, who seemed to have no scruples about murdering his benefactor, and a poor crippled man at that, been pardoned out, as we must look at it, to go and do the same thing again? The only excuse we have for such pardoning is that he had a good record for behavior during the dozen years. Now, if the daily paper had stated that he was truly penitent for his crime, had expressed sorrow and regret, and had started to lead a Christian life, giving reasonable evidence that he was truly born again, perhaps it might be well to pardon him out; but even then there is the record standing before the world as a precedent, and other men (and boys) seeing him get off so easily would be more likely to be tempted to do likewise. The paper does not tell us that his crime was committed under the influence of drink. We only read that he had been in the habit of going to that good old soul when he was hungry; and that was the reward the good man got for having had pity on the poor tramp. And, by the way, how does it come that this young vagabond had no money to pay for food? He was in the prime of life; and, so far as we know, was well and strong. In the great city of Cleveland there is all the time an unfilled demand for help—any kind of help. Just at the present moment, while I dictate these words, we are paying skilled masons who came down from Cleveland almost a dollar an hour; and the mason's helpers that came along get half as much. Yet able men are going about begging for "cold victuals," etc.

"THOU SHALT NOT KILL."

Somewhat more than a month ago a mob of citizens of Spartanburg, S. C., dynamited the outer gate of the jail and demanded of Sheriff White that he yield to them the person of a negro prisoner. Sheriff White stood before them, supported by a single deputy. There was a revolver in Sheriff White's hand.

"Gentlemen," he said, "I hate to do it; but, so help me God, I'll kill the first man who comes past that gate."

Perhaps the members of that mob knew Sheriff White well enough to understand that he meant precisely what he said. Perhaps they were influenced by mere cowardice. But, at any rate, the mob evaporated.

The negro who was the object of the mob's efforts has now been tried by a jury of white men, and has been found not guilty. There was, it appears, never any thing but flimsy suspicion against him. Mere suspicion had been sufficient inspiration for the Spartanburg disciples of Judge Lynch.

The above, which I clip from the *Cleveland Leader*, vividly illustrates several im-

portant points—first, the foolish, senseless fashion that some crazy people have got into their heads of taking the law into their own hands. Second, that, notwithstanding the command, “thou shalt not kill,” there is a time when it is right to kill in order that we *save* the lives of the innocent; and may God be praised that we have men like Sheriff White who dare stand before a crazy mob and say, “So help me God. I will kill the first man who comes past that gate.” I hope, if the time of trial should come, God will give me grace and courage to stand by this man. No wonder the mob “evaporated.” The above clipping does not say whether that crowd was drunken or not; but judging from what I know of such things, the mob was probably fired up with beer or whisky. That is why it is getting to be the fashion of closing the saloons whenever any violent outbreak occurs. After it was all over, it turned out that the poor colored man was entirely innocent.

In our peaceful town of Bradentown, Fla., a poor fellow was dragged out of jail and hung up by just such a crowd. The sheriff excused himself by saying that “it was not possible to stop them.” The colored man who worked for me informed me afterward that the poor fellow who was strung up was not right-witted, and probably was innocent of any deliberate wrong. Of course the mob did not know about this, and I fear some of them would not have cared if they had known. The authorities of Bradentown have recently broken up several “speakeasies” in the colored part of the town.

GARDENING AND GODLINESS.

Years ago I did a nice little business growing and selling horseradish. We had a grater run by the machinery in our factory, and our women employees ground the roots and put in our 1-lb. honey-bottles, and these were carried fresh every day on our market-wagon. As the bottles were returned next trip, we sold a 1-lb. jar full for 10 cts. Counting every expense as far as I could, the grated radish cost only about 4 cts., but I tell you it took some “bossing” to secure smooth running all the way from “producer to consumer.” With the above preface, let us consider *another* successful(?) horseradish “son of toil.” See below from first page of Cleveland *Plain Dealer* of Dec. 26:

At the point of a revolver two masked burglars early yesterday morning compelled Samuel Hirt, 2216 E. 40th St., horseradish manufacturer, to march downstairs in his night clothes to a first-floor room of his home, where they forced him to unlock a safe containing \$739, the receipts of his Christmas marketing trade.

Police last night still were searching for the robbers, who fled from the house in haste as soon as they had snatched the rolls of bills and bags of currency that the safe held.

Aroused from sleep by noises in the rooms below, Hirt left his bed and went to the top of a staircase, where he pressed a button that lighted the lower hall.

He saw a masked man standing at the foot of the stairs with a revolver pointed up at him.

“Turn that light out and be quick about it,” the burglar commanded hoarsely, giving a flourish of his revolver to emphasize the order.

Hirt didn’t hesitate. With his hand still on the button he gave a push that darkened the hall below him. Almost at the same instant a pocket lamp in the hand of the burglar sent a stream of light up the staircase.

“Samuel—Samuel, what is the matter?” Mrs. Hirt called to her husband from the bedroom.

“Don’t say a word,” commanded the burglar. “Now, come on down the stairs.”

As Hirt walked slowly down with his hands in the air the burglar at the foot of the steps called to a companion in another room.

“Come on in, Jim; it’s easy now,” he said.

A moment later a second masked man walked into the hall.

Indicating that they were familiar with the location of the rooms of the house, the burglars compelled Hirt to go to the room containing the safe.

“Unlock it,” one of the robbers ordered crisply.

With trembling hands the market man figured the dial to solve the combination. In his nervousness he was unable to open the doors quickly enough to satisfy the robbers.

“Remember, no bluffing goes,” one of the burglars warned. “Open it in a hurry or we’ll send a bullet into you.”

Again Hirt turned the dial and this time the large handle on the door turned when he tried it. A moment later the door swung open. The electric flash lamp lit up the interior and showed the treasure the robbers were seeking.

Hastily stuffing the money into their pockets the robbers turned to Hirt with a parting warning.

“Don’t call for help until we get out of the house,” they said.

The light flashed out and the robbers headed for a rear door.

A few moments later Hirt rushed into the street and called for aid. A group of excited neighbors gathered and a call was sent in to police of the third precinct. No trace of the burglars was found.

Hirt conducts two horseradish stands in the downtown market district. One of his shops is at Huron Road and E. 4th St., the other at Bolivar Road S. E. and E. 4th St. The amount in the safe, \$739, represented his receipts for the three days preceding Christmas.

A half-dozen other burglaries on Christmas eve were reported to police yesterday. Hold-up men also plied their trade actively according to reports from victims.

Do you ask what the above has to do with godliness, or what it has to do with us? Listen: Friend Hirt is an honest, hard-working man. Through days of toil he had reaped his final harvest, and was sleeping the sleep of the just. His money, taken in late at night, was deposited in a good safe. He was a prudent man; but what did his “safe” or any safe amount to? A fiend in human form *coveted* his hard-earned savings made from growing and selling *horseradish*. We are sometimes tempted to ask, “Is there *really* a God above?” If so, why does he

permit such things? Joshua asked the question, you may remember, and Jehovah told him it was because there was an "Achan" in their midst. There is an Achan in the big city of Cleveland, and all the increased force of policemen will never restrain the "carnival of crime" (*Plain Dealer* again) until that Achan is disposed of. You and I are suffering because of him; we are all suffering; and God will permit things to go on from worse to worse until we wake up and "do something." A thousand or more saloons have just been "licensed." In God's name, why not license these *masked men* we have been reading about, to go on with their "industry"? Yes, and then let them buy and sell these licenses. The same daily tells us three *schoolboys*, excited by the way "hold ups" succeed, got a pistol and made a man give up his money. Several times, when there is labor or other troubles in large cities the saloons have all been closed. Is it not nearing the time when the mayor and chief of the police decide, as a last resort, to *destroy* this Achan, as Kansas, Maine, and other States have done?

SOWING GOOD SEED, ETC.

I think I have explained before, that, when we are down in Florida, Mrs. Root and I attend the Presbyterian Church. In fact, I should like to say we are a part of the Presbyterian Church—that is, if the good pastor and the good people there will not object. Well, of late my heart has been warming more and more toward our Presbyterian people; and here is a letter from a good Presbyterian brother that I hope will warm the hearts of all readers of GLEANINGS, no matter what denomination they belong to:

Mr. A. I. Root:—I am largely indebted to you for the contents of the "sticker" which I enclose. I am a Presbyterian minister. I have been on the road for a number of years in the interest of our church papers. After I had been traveling for some time I noticed that "drummers" often had "stickers," and it occurred to me that I might have one with which to "drum up" the Lord's business. But I was much at a loss as to the form. While in this dilemma I read one of your articles, in which an expression very much like the first of my "sticker" occurred. I took it, changed it somewhat, and had a thousand of them printed. My intention was to create a more devotional reading of the Bible. When I would hand them to some one I would say, "Stick that in your Bible. It is a good little prayer to offer before you read your Bible, or when you come to a good passage, or a hundred times a day when things don't go right."

At first I did not have my name on them. I gave one to a drummer. He said, "That's all right, but it hasn't any name on it." I said, "I do not believe that people are interested in my name."

He put his hand in his pocket, and, taking out a dollar, he said, "Here is a dollar. Have a dollar's

worth of those printed at my expense, and put your name on them." So I have been putting my name on them ever since.

I thought you would be interested in this, and thought it nothing more than right that you should know the good your article was doing.

If any of your readers would like to have some for their own use, or for distribution, I will take pleasure in sending them free of charge if they will send a stamped self-addressed envelope, and say how many they want.

Hulbert, Okla., Sept. 22.

E. P. KEACH.

The sticker he alludes to is a sort of gummed label, or card, and below is what we read on it:

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* * * * *
* Teach me, O Lord, just the *
* lessons you want me to *
* learn, and make me willing *
* to do what you want me to *
* do that I may be thy child *
* indeed. *
* E. P. KEACH, Temple, Texas *
* 1913 *
* * * * *

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Dear friends, I hope you will read that over and over. And now let me ask you the question, does it seem possible that any man or woman who reads and endorses that little prayer (for indeed it is only an enlargement of my little prayer, "Lord, help"), can be selfish or tricky or deceitful? God forbid.

SEVENTY-THREE YEARS OLD, AND—"THESE ARE THE BEST DAYS OF MY LIFE."

Dear Brother Root:—Several months ago you made mention in your *Homes* article of a new discovery you made. As I read it I was reminded of an experience of my own more than forty years ago.

One day my hired man said to me, "On next Saturday evening there will be a preparatory service at the Lutheran church. There will be communion services on Sunday." I did not say any thing to the Lutheran brother, but I wondered what kind of service that might be. I had never heard of such a meeting. However, I decided to go. But before I left I went into my bedroom and got down on my knees and asked God to keep me from going as a critic, but that I might get something good. They had an after-service, and the pastor began to ask his members questions about their daily life; and as he asked, and they gave their answers, I would mentally ask myself the question, and give the answer. I can remember only two questions. One was, "Do you have family worship in your families every day?" I, of course, could say "Yes." The next was, "Do you read God's word in your families every day?" To that question I had to say "No." The spirit of God had been talking to me about that very duty, but I did not take heed to it. We had a custom of singing a hymn, then have our prayer service. But there that Saturday eve, in that Lutheran church, I promised God I would read his word to my family every day, and I believe I have kept my promise up to this time. The children then were in their teens and under. Now they are all grown to manhood and womanhood, and I will ever praise God for the determination he put in my heart to live for him.

I am now in my 73d year, and these are the best days of my life, although the half of my family, which means my wife and six children, have passed over, and I am here with six children and twenty

grandchildren and two great-grandchildren. My children were all converted, and some of the grandchildren. I expect to meet them some day. But, most of all, and first of all, I want to see my Savior.

Abilene, Kan., Oct. 13. N. G. HERSHEY.

Dear friends, the above is the record of one of our good veterans who, by a chance word of a good faithful pastor forty years before, took up Bible-reading while supporting a family of twelve children. I do not know, and perhaps nobody but God

knows, the influence and effect of reading the Bible every day for forty years. It had its influence, too, you may be sure on the grandchildren as well, and perhaps on the great grandchildren. And, besides all that, he is enabled to stand up before us in this little "class meeting"—for that is really what it is—and "testify" that, even though he is past threescore and ten, "these are the best days of my life."

High-pressure Gardening

ANOTHER "GREAT INVENTION" IN THE LINE OF "CHICKENS" AND "GARDEN SASS."

Before we can grasp the "magnitude" of my discovery in full, I shall have to take up some other lines leading up to it. In making garden in years past I have bought many loads of stable manure; for until I came to Florida I had got to thinking if it is true that it is "money that makes the mare go" it is about as true that it is "manure that makes the garden grow." Well, one drawback on the manure, especially if bought at the livery barns, is the weed seeds that come with it. Besides the weed seeds are the seeds of *oats* that seem to pass the digestive organs with vitality enough to grow "right smart" oftentimes, when they must be pulled out by hand. I remember mulching some choice strawberries with stable manure, and the oats came up so thickly we had almost a green lawn. Really, there is need that Terry and Fletcher give the *horses* lectures on chewing *their* food more thoroughly. Grinding the oats would certainly prevent germination; but, if I am correct, our experiment stations have not reported any very *great* advantage in ground feed. There is certainly a big waste in feeding *oats* along in this line; but I really don't know the best remedy. I believe it is generally agreed that *poultry* have a "mill" that God gave them that pretty well cuts off all chance of germination. Below is a clipping from the IHC Almanac that may have it about right:

It is a pretty generally accepted fact among farmers that, to get the greatest feeding value from grain, it should be ground. Investigation has demonstrated that in some instances as high as 35 per cent of grain can be saved by feeding it ground. The average saving, however, will probably be about 12 per cent.

For several years past we have kept dry sand under the roosts in all our poultry-houses, and Wesley has swept up the droppings the first thing every morning. They are kept in tin cans until wanted in the

garden. Since we have done this we have had little or no trouble from vermin. Another reason is that almost every day we have visitors who take GLEANINGS—oft-times ladies; and when I "show them around" it is worth a good deal to me to find no droppings visible in any of the poultry-houses. Now you are about ready to take in my "discovery."

Mr. Rood, in looking over and admiring my garden a few days ago, said he believed some stable manure, even if it did cost \$3.00 a load, would be a profitable investment on some of my new ground. I put a heavy dressing on about 100 square feet where I sowed alfalfa and sweet clover. I also put on half a pailful of air-slacked lime. The seeds came up finely; but there was also an *excellent* stand of oats as usual. After spreading two big loads on the garden where it seemed to be needed, there was about two wheelbarrow loads left. I told Wesley to put it under the poultry-roosts. There were probably oats in this like the rest; but there were *very few* when night came, and no poultry manure visible; and Wesley says fine dry stable manure is very much less work to *handle* than heavy, useless *sand*.

Terry, in all his writings, has been very emphatic about having stable manure worked up fine before putting it on the land. Do you know of any "machine" that will fine up manure as will a hen and chickens? When I saw how it worked I got a whole load and put the manure six inches deep under the roosts of all our eight houses. When we used sand, and especially when we fed much lettuce, the droppings were often so moist they went on the garden in lumps or chunks; and often in hoeing I spent quite a little time in breaking these up and mixing with the soil. The hens now do all this, and we have the floors all looking tidy if we leave them to the care of the hens a week or more.

Can you imagine any better way of keep-

ing and handling the droppings and applying them to the land, than mixing and composing them with stable manure?

In conclusion I suppose I shall have to own up, as with many of my other discoveries, that it is *not* exactly *new*. In fact, it is just the way I kept chickens when a lad of ten or twelve, more than 60 years ago. My chicken-house was a "lean-to" back of the horse-stables. I fixed a door under the

sill of the barn so manure could be shoveled into the care of my fowls easier than to lift and throw it out at the little door. The chickens dug it over and over, even in zero weather, and I had eggs to sell when no one else did; and when it came summer time, "our garden" (mother's and mine) was ahead of the whole neighborhood because of our supply of fine, dry, pulverized poultry and stable-manure compost.

Health Notes

"IF EVERY ONE DID AS TERRY DOES."

V. W. Clough, Brewster, Wash., writes to *GLEANINGS IN BEE CULTURE*, heartily endorsing *The Practical Farmer's* health book. And then he adds that, "If we all lived as Terry does, every thing in the eating line would be a drug on the market, with the possible exception of fruit; it would mean the bankruptcy of our nation." You can leave out the "possible." The fruit would all be eaten, and much more called for. We see no reason why the demand for vegetables would not be about the same as at present. There would be less grain products eaten, because we would get more good from a smaller amount, on account of more thorough chewing. So there would be far more grain to ship to England, which would be good for the nation, and would in no way injure the producers. White beans are a leading article of food in New England, but they are not as much used as they should be in many other sections. If every one lived as Terry does, the market price of the legumes would be higher than at present, unless many more were raised. Terry bought 3½ gallons of extracted honey last winter. If everybody used as much, the price of honey would go soaring. He bought three gallons of pure olive oil, and will soon have to get another. Growers could not begin to supply the demand if every one ate as much. His wife and he eat from 1½ to 2 pounds of best creamery butter per week. The price would go higher than it is now if every one used it as freely. If all let meat alone, as Terry does, because he can do better, there would be vastly more to ship to Europe, where it is wanted. The nation would actually gain by it. If Terry's simple, wholesome way of living were followed by all it might make a temporary trouble for egg-producers, but soon they would find a way to can or evaporate their products and ship them to countries not so well posted. This would not bankrupt our nation, although it might be considered as not loving our neighbors as well as ourselves. As to adulterated, poisoned, and injurious articles, they ought to be "a drug on the market." If every one shunned liquor as Terry does, there would be enough more grain to sell to pay soon the huge national debt. And there would be hundreds of millions more money in the hands of the people for comforts and real luxuries. Terry has never used tobacco. If every one did the same, the saving in money and the greater efficiency of our young men would soon boom business away out of sight of what it is in any other country on earth.

The above comes from the *Practical Farmer*. If Terry means that he and his wife use perhaps 3½ gallons of honey a year it certainly would send the price of honey soaring if every one used as much. If the necessities of life, especially butter, eggs, and milk, should get to be a "drug

on the market," it would be a great boon to the hard-working people who are at present complaining of the "high cost of living." When eggs get down to 20 cts. a dozen, instead of 30 and 40, in my Florida home, I always feel happy, because it is such a blessing to poor people, even if it does come a little hard on the "chicken man." May God speed our good friend Terry and his hosts of followers.

CASSAVA—SOMETHING MORE ABOUT IT.

We clip as follows from the *Florida Grower*:

In Jamaica a new industry has recently sprung up in the line of making cassava wafers which are now exported to the United Kingdom and the United States. These wafers are made in several forms from the huge coarse "bammies," consisting of the grated root with a little of the starch pressed out, made into thin sheets and toasted or roasted or fried, to the delicate "tea wafers" which for some time have been used at fashionable luncheons and afternoon tea parties, especially in Boston. Nowhere is there any thing else in the bread line quite so good, in my opinion, as hot-buttered "bammies" fresh from the fire.

Not only the wafers, cookies, and cakes, but also the new breakfast foods, tapioca, flour, etc., made from the grated root treated in different ways, are bound to be popular.

GETTING RID OF ROACHES, ETC.

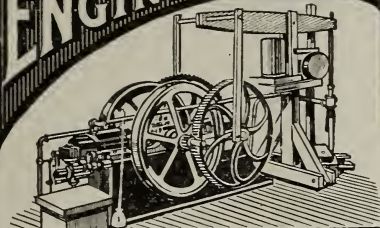
Some years ago I saw an article in a newspaper saying that roaches could be destroyed by placing in their reach a mixture of flour, sugar, and plaster of Paris, all finely pulverized. The mixture is to be put in a dry place. I don't remember the proportions of the different ingredients; but the readers of *GLEANINGS* in Florida might try equal parts of each.

Portland, Ore., Aug. 25.

C. WANTY.

The above would certainly be preferable to poison of any kind; because if you poison the roaches, and the chickens afterward gobble them up, you kill the chickens also—at least so they tell me down in Florida. In the above it is the plaster of Paris that does the business, and chickens do not mind plaster of Paris. The same thing has been frequently recommended for rats and mice. After they take a drink, the plaster sets.

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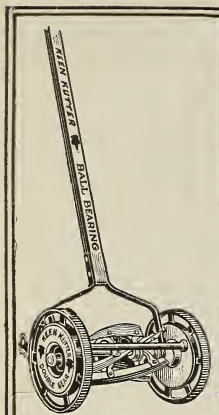
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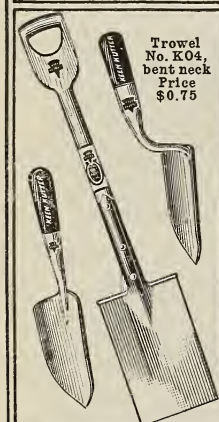
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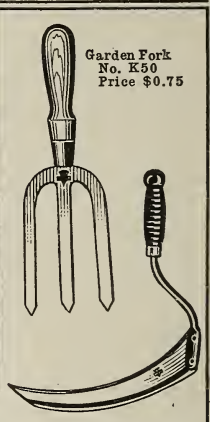
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Lawn Rake
No. K24. Price \$0.50



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THIS famous Old Trusty book has started half a million people making poultry profits. The Johnsons offer no untried experiment in chicken raising. If the Old Trusty isn't all that's promised we trade back. An

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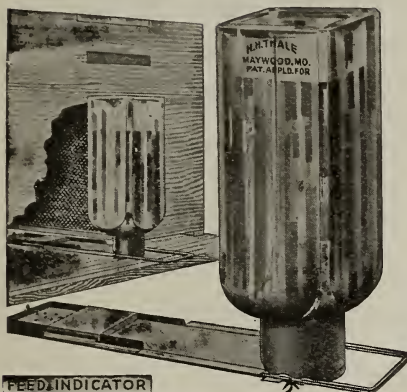
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Places wherever it has been given a trial. After mailing out several thousand sample feeders we have received hundreds of orders like the one given below:

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Mr. H. H. Thale:—I received the sample bee-feeder all O. K., and think I shall like it much. Ship me 250 feeders complete, and 25 extra bottles with cork valve. Enclosed find check in settlement for same. This is quite a bee country, and the main drawback has been that they don't get strong quite early enough to take proper advantage of the earliest clover blossoms.

Now, if you would like an agent in this part of the country I am sure I can make some heavy sales for you, as I am acquainted with beekeepers owning from 1000 to 1500 colonies each. Please let me hear from you at once.

D. B. HERSPERGER.

I want every beekeeper and queen-breeder in the U. S. to try this feeder this season. Send 55 cts. for sample feeder post-paid to-day. This is one of the biggest money-makers for the beekeeper. Over 42,000 are now in use.

I want over 100,000 of these feeders in use by June 1. I will ship you as many feeders as you need on ten days' free trial in your own apiary, and if these feeders do not work as represented you may return them to me at my expense, and your money will be refunded. Send your order to-day. Address Free Trial Dept., G 194.

Send for feeder circular and bee-supply catalog.

TERMS, CASH WITH ORDER

Sample Feeder, with 2 bottles complete, mail postpaid, 55c
Ten Feeders, complete with 1 bottle, freight or exp., each, 35c

All orders over ten feeders, each, only 30c
Extra bottles with cork valve, each 10c

H. H. THALE, INVENTOR AND MANUFACTURER Box G25, MAYWOOD, MISSOURI

Eastern Buyers Send Orders to Earl M. Nichols, Lyonsville, Mass., and B. H. Masters, Edison, Ohio
Western Buyers Send Orders to D. B. Hersperger, Ordway, Colo.

TEN DAYS' FREE TRIAL OFFER

Please send by.....Freight; Parcel Post (send postage), Express
Postoffice..... R. R. Station..... State.....
Send at once (number of feeders).....feeders on ten days' free trial. Title of feeders to remain with
H. H. THALE, of MAYWOOD, MO., until payment in full is made or feeders returned.
How many colonies have you?..... Annual crop.....lbs.
Produce comb or extracted?..... Sign.....

BOTHERED WITH SCALE?

The one absolutely sure spray for San Jose is "Scalecide." Used in the best orchards everywhere. Endorsed by Experiment Stations. Will keep your trees clean and healthy and make them yield number one fruit. Better than lime sulphur. Easy to handle. Will not clog or corrode the pump or injure the skin. "Scalecide" has no substitute. OUR SERVICE DEPARTMENT furnishes everything for the orchard. Write today to Department G, for new book—"Pratt's Hand Book for Fruit Growers" and "Scalecide" the Tree Saver. Both free.

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and disinfecting with the new
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Sprayer

gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. Agents Wanted. Booklet free. Rochester Spray Pump Co., 207 Broadway, Rochester, N. Y.

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use these wonderful sprayers to rid fields, fruit trees, gardens of blight, disease and insects—to make all produce big. Auto Spray No. 1—Capacity 4 Gallons. Auto Pop Nozzle throws from fine mist to drenching stream. Does not clog. 40 styles and sizes of Hand and Power Outfits. Large sprayers fitted with

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only nozzle that will spray any solution for days without clogging. Fits any make of sprayer. Write for valuable **Spraying Guide Free.**

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How to Keep Bees

BY ANNA BOTSFORD COMSTOCK

This is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning beekeeping by their own effort. Having commenced beekeeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in getting this book. It is charmingly written and easily understood. Price \$1.10 postpaid.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Tennessee-bred Queens

**42 Years' Experience in Queen-rearing
Breed Three-band Italians only.**

QUEENS	Nov 1st to May 1st			May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested.....	\$1.50	\$7.50	\$13.50	\$1.25	\$6.50	\$11.50	\$1.00	\$5.00	\$9.00	\$.75	\$4.00	\$7.50
Select Untested..	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select Tested ...	3.00	16.50	30.00	2.75	15.00	27.00	2.50	13.50	25.00	2.00	10.00	18.00

Capacity of yard, 5000 queens a year.

Select queen, tested for breeding, \$5.00.

The very best queen, tested for breeding, \$10.00.

300 fall-reared tested queens, ready to mail, \$2.50 to \$10.00 each.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

John M. Davis, . Spring Hill, Tenn.

Queens and Bees

We are now booking orders for our celebrated Leather-colored and Golden Italian Queens. Bees in $\frac{1}{2}$, 1, and 2 lb. packages. Nuclei in 1, 2, 3, or 5 frame, either on Danz. or Hoffman frames. Full colonies in 8 or 10 frame L. hives or Danz. 10-frame hives. Write at once for special card of prices, and book your order with us early.

Letter of endorsement to us from The A. I. Root Co.:

Medina, Ohio, Feb. 6, 1914.

The Penn Co., Penn, Miss.:

Replying to yours of Feb. 3, we would state that we have bought a large number of queens of you. We have found them uniformly marked, and of a good stock; in fact, they are first-class in every respect. Another thing, we have always found that you make prompt deliveries, or give us notice promptly when such deliveries could not be made.

THE A. I. ROOT CO.,

by E. R. Root, Vice-president.

Get our prices at once. . . . The largest queen and bee yards in the South.

The Penn Co., Penn, Mississippi

Marchant's Island Bred Queens

Bred from selected mothers, and mated to isolated drones of a different strain. My aim is quality and not quantity. So if you want any of these choice purely mated three-banded Italian queens order now or you may not get them as I am going to rear only a limited number. No disease, and your money back if not satisfied. The A. I. Root Co. use my queens, which is proof of their quality.

No need to write for lower prices.

Reference, The American Exchange Bank of this city.

Prices—Untested, single, \$1.50; 6 for \$6.00; 12 for \$10.00; in lots of 25 or more, 75 cts. each. Select tested, \$3.00. Breeders, \$5.00 and \$10.00.

A. B. Marchant, . . Apalachicola, Florida



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine bees. Write in English for booklet and Price list. . . . Awarded 60 honors.

JOHANN STRGAR, . . Wittnach
P. O. Wocheiner Feistritz, Upper
Carniola (Krain), Austria

Goldens that are Golden

I have disposed of business in Philadelphia, and will raise all queens that I possibly can the coming season, and will fill all unfilled orders first. Queens are getting better each year. Prices: Select untested, \$1.50; tested, \$3.00; breeders, \$5 to \$10. . . . Send for booklet.
GEO. M. STEELE, 30 So. 40th St., PHILADELPHIA, PA.

QUEENS FROM CARAWAY'S PRIZE-WINNING STOCK

THREE-BANDED ITALIANS READY TO MAIL NOW

Golden Italians	After April 15				After May 10				After June 10		
	1	6	12	100	1	6	12	100	1	6	12
Untested..	\$1.00		10.00	75.00	\$.90	\$4 50	9.00	70.00	\$.70	\$4.00	\$7 75
Tested. ...	1.25	6 00	12.00		1.00	5 00	10 00				

Select tested, April 1 till Nov. 1, \$2.00 each. Breeders, \$5.00 each. Bees by the pound, after May 10, 1 lb. for \$2.00; 10 lbs., \$18.00; 100 lbs., \$170.00. Add to these the price of queen or queens; safe arrival guaranteed within five days' journey of Mathis.

My three-banded Italians captured first prize again at Dallas State Fair and the Cotton Palace Fair at Waco. This speaks for itself. None better.

My Stock.—I secured the best stock obtainable; and when you pay more than my prices you are paying that much extra. I sell nothing but good queens. None better. I positively guarantee my queens to please. No foul brood or other diseases.

B. M. CARAWAY, MATHIS, TEXAS

References: Mathis First State Bank and The A. I. Root Company

GOLDEN ITALIAN Queens

Reared from straight five-band mothers, mated with select golden drones, $\frac{3}{4}$ miles from three-band apary. These queens are large, vigorous, and prolific; the bees gentle and hustlers, and are noted throughout the U. S. as a disease resisting strain. Purity of mating, safe arrival, and satisfaction guaranteed.

QUEENS	May 1st to June 1st			June 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12	1	6	12
Untested	\$ 1.25	\$ 6.50	\$11.50	\$ 1.00	\$ 5 00	\$ 9.00	\$.75	\$ 4.00	\$ 7 50
Select Untested.....	1.50	7.50	13.50	1 25	6 50	12.00	1.00	5.00	9.00
Tested	2.00	10.50	18.50	1 75	9.00	17.00	1.50	8.00	15.00
Select Tested	2.75	15.00	27.00	2 50	13 50	25.00	2 00	10.00	18.00

Breeders, \$5.00 to \$10.00.

Queens for export will be carefully packed in long-distance cages, but safe arrival is not guaranteed.

BEN G. DAVIS, SPRING HILL, TENNESSEE

W. H. LAWS

is prepared to take care of all your queen orders the coming season.

Twenty-six years of careful breeding places Laws' queens above the usual standard.

My bees, in my own and in the hands of others, have taken first premiums at the leading fairs all over the United States; and, in the hands of single individuals, have gathered over a car of honey in one season.

Tested queens ready now. Each, \$1; 12 for \$10. Untested, after April 15, breeding queens, about fifty of the finest ready at any time; each, \$5.00.

W. H. LAWS, Beeville, Bee Co., Texas

Taylor's 1914 Three - banded ITALIAN QUEENS

Now ready to mail; 26 years' careful breeding for the best honey-gatherers. None better. Prolific, and honey-getters. We fill all orders promptly. Untested, \$1.00 each, or \$10 a dozen. Tested, \$1.25 each, or \$12.00 a dozen. Select tested, \$1.50 each or \$15.00 a dozen. Breeders, the best, \$5.00 each. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

SAVE YOUR QUEENLESS COLONIES

Introduce a vigorous tested queen. We can supply them by RETURN MAIL for \$1.00 each.

UNTESTED queens, ready April 15.

single queen, \$1.00; \$9.00 per dozen.

No disease. Satisfaction guaranteed.

J. W. K. SHAW & CO., LOREAUVILLE, LOUISIANA

Three - banded Italian Bees and Queens!

Guaranteed safe arrival and satisfaction. Untested queens, 75 cts. each; \$7.50 per dozen. Tested, \$1.50. Choice breeders, \$5.00. Nuclei, \$1.25 per frame, good supply of bees. Half pound bees with queen, \$2.00. One pound bees with queen, \$3.00, full weight. Full colony in eight-frame hive with queen, \$6.50; in ten-frame, \$7.50. Best mail and express service in the South. Only 12 hours to St. Louis, Mo.

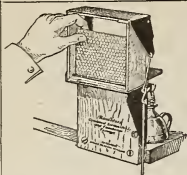
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If you will send us a list of goods needed we will be pleased to quote you on them. Catalog free.

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SPEND LESS TIME IN THE SHOP AND MORE WITH YOUR BEES. . . .

In raising comb honey cut the time of putting up sections in half by using the New Rauchfuss Combined Section-press and Foundation-faster. Price \$3.00 delivered anywhere in the United States. Satisfaction guaranteed or your money back. . . . Write for illustrated circular to-day, to

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WHITE WYANDOTTES--BRED TO LAY

John S. Martin Regal Strain

Two matings, both headed by Cleveland 1914 winners. Carefully selected females. Eggs: Pen No. 1, \$3.00 per 15; \$7.50 per 50; \$12.00 per 100. Pen No. 2, \$2.00 per 15; \$5.00 per 50; \$9.00 per 100. I guarantee nine chicks to a setting; if less than this number hatch, I will furnish another setting at half price.

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... By a Liberal Distribution of Our Booklet ...

THE USE OF HONEY IN COOKING

The 1913 edition is ready for distribution, and may be had in quantities at reasonable rates. The back cover page affords space for a display advertisement. As this booklet contains no advertising whatever, it can be employed with telling effect. Better order your supply early. Sample and prices in quantities on application. Fifty-eight pages; one hundred and twenty-two valuable recipes in which honey is used. Just the book for every household. A two-cent stamp will bring a copy.

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WORK YOUR OUT-YARDS BY THE DOOLITTLE PLAN

His Methods are Fully Explained in the Fourth Edition of

Management of Out-apiaries

This is a revised edition of "A Year's Work in an Out-apiary," containing the latest ideas of the author, Mr. G. M. Doolittle, of New York, telling how he has employed them and secured during a poor season an average yield of 114½ lbs. per colony. 1913 edition ready for mailing. 50 cts. postpaid.

Order Now of the Publishers

The A. I. Root Company
Medina, Ohio

FLAX BOARD

IS THE BEST INSULATING MATERIAL KNOWN

It will retain the heat in the hive so there will be no condensation. Hives will be warm and dry, and no moisture will collect in the damp-cellular or outdoors where Flax Board is used.

We recommend its use under the cover; but it is also valuable over the bottom and on walls of the hive. Introductory price as follows:

½ in. thick:	8-fr. size, each, 10c;	per 100, \$6.00
	10-fr. size, each, 11c;	" 7.00
¾ in. thick:	8-fr. size, each, 14c;	" 9.00
	10-fr. size, each, 15c;	" 10.00

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Manufacturer of Standard Dovetailed Hives, Sections, and Shipping-cases.

BEE SUPPLIES Send your name for new 1914 catalog out in January. Dept. T, CLEMONS BEE SUPPLY CO., 128 Grand Ave., Kansas City, Mo.

Just Six Minutes to Wash a Tubful!

This is the grandest Washer the world has ever known. So easy to run that it's almost fun to work it. Makes clothes spotlessly clean in double-quick time. Six minutes finishes a tubful.

Any Woman Can Have a 1900 Gravity Washer on 30 Days' Free Trial

Don't send money. If you are responsible, you can try it first. Let us pay the freight. See the wonders it performs. Thousands being used. Every user delighted. They write us bushels of letters telling how it saves work and worry. Sold on little payments. Write for fascinating Free Book today. All correspondence should be addressed to 1900 Washer Co., 1129 Court St., Binghamton, N. Y. If you live in Canada, address Canadian 1900 Washer Co., 355 Yonge St., Toronto, Canada.



MAKE HENS LAY

more eggs; larger, more vigorous chicks; heavier fowls, by feeding cut bone.

MANN'S LATEST MODEL BONE CUTTER

cuts fast, easy, fine; never clogs.

10 Days' Free Trial. No money in advance. Book free. F. W. MANN CO., Box 37 MILFORD, MASS.

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

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FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Finest quality buckwheat honey in cans and kegs. Clover honey all sold. C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—2500 lbs. good clover honey in 10-lb. pails at 9 cts., f. o. b. Kinde. Bargain in 1000 lbs. fall honey. GEORGE ASHWELL, Kinde, Mich.

FOR SALE.—No. 1 white comb, \$3.00 per case; fancy, \$3.25; 24 Danz. sections to case, six cases to carrier. WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—3000 lbs. of fine extracted honey in 60lb. cans, 9 cts. per lb. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—400 lbs. good buckwheat honey in 5-lb. pails, well ripened; will take \$30.00 for the lot to clean up for the season. M. C. SILSBEE, Rt. 3, Cohocton, N. Y.

FOR SALE.—White-clover honey, none better. In 10-lb. pails, six in a case, at \$6.50 per case; 5-lb. pails, 12 in a case, at \$7.00 per case; ½-lb. glass jars, 24 in a case, at \$2.80 per case. Sample, 4 cts. Also in 60-lb. cans, very nice amber honey. HENRY STEWART, Prophetstown, Ill.

HONEY AND WAX WANTED

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey and beeswax. State what you want and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Honey, extracted and comb. Will buy or handle on commission. Beeswax—will pay highest price. HILDRETH & SEGELKEN, New York, N. Y.

WANTED.—Best grade white-clover and buckwheat extracted honey in cans or small barrels; the square five-gallon can, two cans to the case, preferred. Send sample, and quote best cash price delivered f. o. b. Medina, also f. o. b. Chicago, Ill. Can use quite a large quantity of both grades.

THE A. I. ROOT CO., Medina, Ohio.

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FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—3¼ x 5½ camera and Edison photograph. E. B. FAY, Alexandria, Minn.

FOR SALE.—Full line of Root's goods at factory prices. ELMER W. PALMER, Catskill, N. Y.

FOR SALE.—One two-ton motor truck. Write for particulars. MRS. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—Hatch wax-press, nearly new, for \$3.00. J. M. GINGERICH, Arthur, Ill.

SIXTY-DAY SEED OATS. Heavy yielders. Very early, including a clover catch. Re-cleaned. Sacks free. 90c. 10 bu. or over, 75c. GAIL T. ABBOTT, Rt. 3, Medina, O.

FOR SALE.—Root's goods and Dadant's foundation at factory prices.

SPENCER APIARIES, Nordhoff, Cal.

FOR SALE.—Plain section supers, fences, and holders, nailed and painted, cheap.

W. W. LAWRENCE, Centerville, Tex.

New crop of extra-fine quality alfalfa seed, \$6.50 per bushel; sacks, 25 cts. extra; also some sweet-clover seed. R. L. SNODGRASS, Augusta, Kan.

FOR SALE.—Better hives for less money. Beekeepers' supplies and standard-bred Italian bees. Write for catalog. A. E. BURDICK, Sunnyside, Wash.

The best of bee goods for the least money. Send for new catalog. Satisfaction guaranteed or money refunded. H. S. DUBY & SON, St. Anne, Ill.

FOR SALE.—Empty second-hand cans, two cans to the case; good as new; 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, Ohio.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Texas.

FOR SALE.—100 lbs. white-sweet-clover seed, hulled, \$25.00, at Wayland, Mich., by R. L. SNODGRASS, Harrisburg, Col.

We are among the largest growers of alsike clover in this country, and offer good clean seed. Bushel, \$11.00; half bushel, \$5.75; peck, \$3.00. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Barnes New Combined woodworking machine with scroll-saw attachment. Perfect condition. Cost \$45. Will take \$25.

WM. W. DEAL, Rt. 2, Huntley, Mont.

FOR SALE.—*Gleanings in Bee Culture* for years 1906, 1907, 1908, and 9 months of 1905; also a few odd copies; \$6 for the lot, charges not paid.

JOHN A. SPURRELL, Wall Lake, Iowa.

The A. I. Root Co.'s Canadian House, Dadant foundation, bees, queens, honey, wax, poultry supplies, seeds. Write for a catalog. THE CHAS. E. HOPPER CO., 185 Wright Ave., Toronto, Ontario.

FOR SALE.—15 dovetailed bodies with new Hoffman frames, 10 extracting supers with new frames, 17 comb-honey supers, 4¼ x 4¼ x 1½ plain, 10 lids, 10 bottoms, 10 excluders, all eight-frame. \$20 for the lot. ROBERT SHOEMAKER, Rt. 3, Swedesboro, N.J.

FOR SALE.—One eight-frame Root automatic extractor; 1½ h. p. engine; 100 Danz. supers with section-holders and fences; empty hives, both 8 and 10 fr.; Underwood typewriter; buzz-saw and emery; Peterson capping-melter; Hershiser wax-press; honey-tanks. MRS. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—22 1½-story second-hand Danz. hives, brood-frames, and section-holders, practically good as new; \$1.50 each, ½ of list price; 5 one-story, \$1.00. Bees were transferred; combs and frames boiled to melt wax. No disease.

A. MOTTAZ, Utica, Ill.

FOR SALE.—The Weaver automatic honey-extractor. It reverses at full speed; is simple and positive; saves 50 per cent of labor, and at the same time increases the output 50 per cent. A four-frame will do the work of an 8. Every one in the market for an extractor, send for particulars.

WEAVER BROS., Richmond and Falmouth, Ky.

The National Beekeepers' Association now buys supplies for their members. Send us your order, enclosing the same money you have to pay others, and we will buy them for you on the co-operative plan. If not a member we reserve the right to retain \$1.50 from the profits on your first order to pay your membership dues and subscription to the *Review* one year. Sample copy of the *Review* free. Address NATIONAL BEEKEEPERS' ASSOCIATION, Northstar, Michigan.

FOR SALE.—Root's goods at factory prices. Fresh stock and prompt accurate service. Let's get acquainted. L. W. CROVATT, box 134, Savannah, Ga.

The Beekeepers' Review Clubbing List: *The Review* and *Gleanings* one year, \$1.50. *The Review* and *American Bee Journal* one year, \$1.50. All three for one year only \$2.00. Dealers or those wanting to buy honey kindly ask for a late number of the *Review* having a list of 100 producers having honey for sale. Address

THE BEEKEEPERS' REVIEW, Northstar, Mich.

WANTS AND EXCHANGES

For bees, queens, or material—typewriters, violins, printing-press, write E. C. BIRD, Boulder, Col.

Will buy bees. Myself examine, pack, and ship. Write F. A. ALLEN, Philipsburg, Quebec.

WANTED.—Bees. Give full particulars and price. W. DAVENPORT, 2201 Pioneer Road, Evanston, Ill.

Will exchange for bees or queens, optical outfit, guitar, or sweet-clover seed. E. C. BIRD, 845 Pine St., Boulder, Col.

WANTED.—Bees in lots of 25 to 300 colonies, preferably within 250 miles of Detroit, Mich. A. W. SMITH, Birmingham, Mich.

WANTED.—Bees in modern hives in New Jersey, preferably on line of C. R. R. of N. J., or Penn. R. R. State particulars to T. EDW. DIENER, Elizabeth, N. J.

Fine Buff Orpington hens, exhibition birds, bred from Madison Square winners, trap-nested, finest quality. Will exchange for Italian bees. S. E. WASSON, Rome, Ga.

TO EXCHANGE.—Dynamo, magneto, storage battery, switch-board, marine engine, 45 ft. power cruising boat. Will sell any or all at half real value, and take it all in bees. HENRY CASWELL, Riverton, N. J.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE.—Well-established paying bee and poultry plant near Chicago. P. AUGUSTIN, Orland, Ill.

For Sale at a Bargain, good improved $\frac{1}{4}$ or $\frac{1}{2}$ section farm near Bisbee and Douglas, Ariz. Best climate and best markets in the United States. Address the owner, 423 So. 5th Ave., Tucson, Ariz. 64947

TO LEASE.—My home place on Phillippi Creek, Osprey Road; new six-room house, 50 colonies bees; young grove, good land, garden, and barn. Reason for wishing to lease, partial loss of the use of one hand. W. J. DRUMRIGHT, Sarasota, Fla.

The Virginia climate is ideal for farming, fruit-growing, and stock-raising. Abundant rainfall, fertile soil. Good farm lands on railroad, \$15 an acre, easy payments. Write for authentic information. F. H. LABAUME, Ag'l Agt. Norfolk & Western Ry., Room 246, N. & W. Bldg., Roanoke, Va.

Men of ambition prosper in the Southeast. Small capital with energy will accomplish wonderful results. Dairy, stock, fruit, or poultry will make you independent. Land sells from \$15 an acre up. Growing season from 7 to 10 months' duration. Modern schools, good highways and churches. "The Southern Field" Magazine and farm lists on request. M. V. RICHARDS, Land and Industrial Agent, Room 27, Southern Railway, Washington, D. C.

FOR SALE.—120 acres of good land right where the clover, raspberry, and basswood grow, and 240 colonies of good bees, and all of the extra fixtures for running three apiaries for extracted honey. Will sell cheap. Write for price.

E. S. FROST, Rt. 3, St. Louis, Mich.

FOR SALE.—About one acre land with fruit-trees, bearing; also berries; four-room frame house, with bath, furniture, carpets, and linoleum; two small tenant houses, renting for \$9.00 per month (the two); also two-story barn, 16 x 20; hen-house, 100 Brown Leghorn hens, 20 stands of bees in L. hives; 20 supers of L. combs; two-frame Cowan extractor; good location for bees; could increase number greatly. Located $\frac{1}{2}$ mile from Glenwood Springs, Colo., the great hot-spring health resort. Terms if desired. Price \$2000. K. M. BARBOUR, Glenwood Springs, Col.

BEEES AND QUEENS

Phelps' Golden Italian Queens will please you. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N.Y.

Two-frame nuclei, with Italian queen, \$2.75; bees by the pound, \$1.25. J. B. MARSHALL, Big Bend, La.

Pure Italian bees or their hybrids, in L. 10 frames, wired, full foundation, 1 or 100. JOS. WALRATH, Antioch, Cal.

Connecticut queens, 3-banded Italians only; large and vigorous; ready May 15. Price list. W. K. ROCKWELL, Bloomfield, Ct.

Golden Italian queens, about May 1. Tested, \$1.00; select, \$1.25; untested, 70 cts. each; dozen, \$8.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Golden-yellow Italian queens my specialty. Un-tested, \$1.00; tested, \$1.50. Ready April 1. Safe arrival guaranteed. E. A. SIMMONS, Greenville, Ala.

Leather-colored Italian queens June 15. Circular free. No foul brood. 1, 85 cts.; 6 for \$4.50; dozen, \$8.00. D. G. LITTLE, Hartley, Iowa.

Three-frame nucleus for sale with queen, \$2.50; 3 or more, \$2.25, on Langstroth frames; commence to ship about May 15. W. H. STANLEY, Dixon, Ill.

Phelps' Golden Italian Bees are hustlers. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

FOR SALE.—200 colonies of Italian bees at \$5.00 per colony. G. H. ADAMS, Spring and Central Ave., Troy, N. Y.

FOR SALE.—40 colonies Italian bees in 8-frame hives, \$200. Will not sell less than whole lot. S. V. REEVES, Haddonfield, N. J.

Three-band Italian queens. Tested, \$1.00; untested, 75 cts.; ready May 15. S. CLICK, Mt. Jackson, Va.

FOR SALE.—15 colonies of Italian bees, Danz. hives, full sheets foundation, and wired combs, \$5.00 per colony. L. P. MORRIS, Elizabethtown, Ind.

My queens are bred from imported mother. For gentleness and honey-gathering they are unexcelled. Untested, 1, 75 cts.; 6, \$4.25; 12, \$8.00. Safe arrival. Address W. J. FOREHAND, Ft. Deposit, Ala.

Italian bees in pound packages and on comb our specialty; 30-page catalog giving beginner's outfit free; also queen.

THE DERBY TAYLOR CO., Lyons, N. Y.

Italian bees, Moore's stock, with tested queens, in ten-frame dovetailed hives, \$6.50 per colony; warranted free from disease.

N. P. ANDERSON, Eden Prairie, Minn.

FOR SALE.—Four stands bees, 4 Root hives complete, good as new. Make me offer for all. M. E. FERRELL, 3542 10th St., N. W., Washington, D. C.

FOR SALE.—100 colonies of bees in double-walled hives at \$5.50 per colony. Write for Peerless double-walled hive circular.

L. F. HOWDEN MFG. Co., Fillmore, N. Y.

California Golden three-banded queens equal the best. Drop us a line. Mated, 75 cts.; 12, \$8; 50, \$32; 100, \$60; tested, \$1.25 to \$2.50.

W. A. BARTOW & Co., San Jose, Cal.

1914 QUEENS.—Moore's strain of leather-colored Italians in April at 75 cts. Also bees by the pound, nuclei, tested queens. Write for prices on nuclei. Address OGDEN BEE AND HONEY Co., Ogden, Utah.

FOR SALE.—50 full colonies pure Italian bees in eight-frame dovetailed hives with Hoffman frames at \$6.00 each. All queens last-year Moore. Hives in good condition, painted. No disease.

F. A. GRAY, Redwood Falls, Minn.

Queens and Bees for Sale.—See our large advertisement elsewhere in this journal, and read The A. I. Root Co. letter to us regarding our queens. Write at once for large bee and queen circular.

THE PENN Co., Penn. Miss.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, \$1.00; six, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. BROCKWELL, Barnett's, Va.

Queens ready in May. J. E. Hand strain of three-band Italians, bred for gentleness, honey-gathering, wintering, and long life. Write for price list and free booklet, How to Transfer, Get Honey and Increase.

J. M. GINGERICH, Arthur, Ill.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. PHELPS & SON, 3 Wilcox St., Binghamton, N. Y.

Golden and three-banded Italian and Carniolan queens ready to ship after April 1. Tested, \$1.00; 3 to 6, 95 cts. each; 6 to 12 or more, 90 cts. each. Untested, 75 cts. each; 3 to 6, 70 cts.; 6 or more, 65 cts. each. Bees, per lb., \$1.50; nuclei per frame, \$1.50. C. B. BANKSTON, Buffalo, Leon Co., Tex.

FOR SALE.—Several yards of bees on five years' time and easy terms of payment. No disease, and best of locations. All we ask is that you help us work these bees for several months this year to show your ability to manage them. Further particulars on request. SPENCER APIARIES Co., Nordhoff, Cal.

Dunn's Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers. March 1 to Oct. 15: One, mated, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$3.00; breeders, \$10.00. L. J. DUNN, Queen-breeder, Box 3377, Rt. 6, San Jose, Cal.

Try Forehand's three-band Italian queens. They are raised from imported stock, unexcelled for honey and gentleness. One untested, 75 cts.; 6, \$4.25; 12, \$8.00. Send me your order; and if not satisfied I will return money. Safe arrival.

N. FOREHAND, Rt. 2, Brewton, Ala.

We requeen our bees every year with best Italian stock to prevent swarming. We offer the one-year-old queens removed from these hives at 50 cts. each; \$5.40 per doz.; \$40 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, 2 frames, \$1.50; 3 frames, \$2.00. Add price of above queens wanted. SPENCER APIARIES Co., Nordhoff, Cal.

FOR SALE.—Swarms of bees in packages. Replace your winter losses and strengthen weak colonies with young, healthy Italian bees; ½-lb. packages, 90 cts. each; 1-lb. packages, \$1.25 each; 2-lb. packages, \$2.45 each. Young, untested, three-banded Italian queens, 75 cts. each. We guarantee satisfaction and safe arrival. Write for circular and complete price list. BROWN & BERRY, Hayneville, Ala.

I will sell and ship some bees from my 400 colonies from northern Louisiana in April and May. Two-comb nuclei, \$2.00; 3-comb, \$2.50. One pound bees in Root cages, \$1.50; two pounds, \$2.50. Queens with bees, 75 cts. extra; young untested, or last season's tested, ordered separate, \$1.00 each. H. C. AHLERS, West Bend, Wis.

Queens bred from Moore's and Doolittle's best Italian stock; untested, 60 cts. each; \$6.60 per doz.; \$50.00 per 100. Tested, 90 cts. each, \$10.20 per doz.; \$80.00 per 100. Delivery guaranteed. Book orders now. Nuclei, any quantity, two-frame, \$1.50; three-frame, \$2.00. Add price of above queens wanted. SPENCER APIARIES Co., Nordhoff, Cal.

Goldens and three-band Italians, ready March 1. They have been bred for three points—prolificness, gentleness, and honey-gathering qualities. Select untested, each, 75 cts.; 6, \$4.25; 12, \$8.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00; three-banded breeders, \$4.00; golden breeders, \$5.00. GARDEN CITY APIARY Co., Rt. 3, Box 86, San Jose, Cal.

FOR SALE.—California Italian queens, Goldens and Three-banders by return mail after March 15; select untested, 75 cts.; 12, \$8.00; tested, \$1.00; breeders, \$3.00. Bees by the pound a specialty, ready April 1; 1 lb., \$1.25; 2 lbs., \$2.25; large lots, less. Booking orders now. Deliveries and satisfaction guaranteed. Correspondence solicited. Circular free. J. E. WING, 155 Schiele Ave., San Jose, Cal.

GOOD QUEENS.—Good queens are a real necessity in any apiary if best results are to be expected. The old leather-colored three-band Italians have proven themselves to be the best general-purpose bee extant. These I can supply in any quantity you may wish. Untested \$1.00 each; \$4.25 for six; \$8.00 per doz. Safe arrival and satisfaction. All orders will have prompt attention. E. J. ATCHLEY, Bloomington, Cal.

FOR SALE.—Early swarms at fall prices; ½-lb. bees, \$1.00; 1 lb. bees, \$1.50. Add price of queen if wanted. Untested three-band Italian queen, 75 cts. each; tested Italian queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction guaranteed. This is undoubtedly the best way for Northern honey producers to increase and improve their stock. Delivery begins about April 5. Capacity, 40 swarms per day. W. D. ACHORD, Fitzpatrick, Ala.

Many men of many minds; but the minds of practical beekeepers are turned toward the old reliable three-band Italians. We have them in their purity, new blood, new importation. Untested queens from March to June, \$1.00 each; \$4.25 for six, or \$8.00 per dozen; safe arrival and satisfaction to all customers. Write for prices on large quantities. You do not have to return dead queens to us—just state it so on a postal card, and queens dead on arrival will be replaced promptly.

THE GOLDEN RULE BEE Co., Riverside, Cal.

EARLY QUEENS.—Those who desire early queens can be supplied by sending orders to us. Only three-band Italians stand the severe test against diseases, and our bees are clean. Untested queens, \$1.00 each; \$4.25 for six; \$8.00 per dozen. Always safe arrival and satisfaction to everybody. If you desire queens in large lots early, better let us book you as soon as convenient, and money can be sent when queens are wanted. Your check is good, or any way you wish to remit.

THE RIALTO HONEY Co., Box 73, Rialto, Cal.

Three-banded Italian queens: Before July 1, untested, 1, \$1.00; 6, \$5.00; 12, \$9.00; select untested, \$1.25; 6, \$6.25; 12, \$11.00. After July 1, untested, 1, 75 cts.; 6, \$4.00; 12, \$7.00; select untested, 1, \$1.00; 6, \$5.00; 12, \$8.50. One-frame nucleus, 75 cts.; two-frame, \$1.50; three-frame, \$2.25. To each nucleus add price of queen. Our queens are reared in a locality where there has never been disease, and reared from strong vigorous colonies. The apiary is under most competent supervision. Safe arrival and satisfaction guaranteed. HORNER QUEEN & BEE Co., Ltd., Youngsville, Pa.

POULTRY

Buckeye Incubators, Kant Krowd Hoover, let me tell you about them. E. O. WALTZ, Medina, Ohio.

FOR SALE.—12 Rouen ducks or 15 R. C. W. Leghorn eggs, \$1.00. IRL SPEAR, Marlette, Mich.

S. C. W. Leghorns, eggs for hatching, \$1.50 per 15, postpaid. E. B. FAY, Alexandria, Minn.

Eggs for hatching. S. C. White Orpingtons. Mating list free. JAMES R. LAMPSON, Box B, Medina, O.

Buff Wyandotte eggs from heavy laying strain, \$2.00 per setting. M. D. CHESBRO, Greenville, N. Y.

S. C. W. Leghorn eggs, bred to weigh and lay. \$1.00 for 15. PAUL FUNK, Warsaw, Ohio.

Stock and eggs for sale, all leading varieties; also geese and Belgian hares. Catalog free. LEVI STUMB, Richland Center, Pa.

Barred Rock eggs, \$2.00 for 15, from high-class exhibition stock, both matings. ALPLAUS BEE AND POULTRY FARM, Schenectady, N. Y.

Pure-bred Indian Runner ducks, snow-white eggs, 15 for \$1.00; 100 for \$6.00. J. C. WHEELER, 421 Austin Boul., Oak Park, Ill.

Pure white and fawn and white Indian Runners, Pekins. Catalog free. White-egg strains. THE DERBY TAYLOR CO., Lyons, N. Y.

LEGHORNS.—Eggs for hatching. S. C. W. Leghorns, \$5.00 per 100; \$1.00 per 15. Send for catalog. WOODWORTH FARM, Wilton, Ct.

Eggs.—20 for \$1.00; leading varieties prize poultry, pigeons, hares, etc. Booklet free. Large illustrated catalog, 10 cts. F. G. WILE, Telford, Pa.

Sicilian Buttercups. One Utility flock. Eggs \$2.50 per 15; unsatisfactory hatches replaced at half price. WALTER M. ADEMA, Berlin, Mich.

White Hackle strain Silver Campines; eggs for hatching, \$3 per 15; \$5 per 30. Write for circular. ELMER W. PALMER, Catskill, N. Y.

FOR SALE.—Sicilian Buttercup eggs for hatching, \$2.00 per 15 eggs. L. S. GRIGGS, 711 Avon St., Flint, Mich.

S. C. White Minorcas, \$3 per 15; R. C. Buff Leghorns, S. C. Brown Leghorns, and Partridge Wyandottes, \$1 per 15. HILLOREST FARMS, Winchester, Ind.

Corning strain direct, S. C. W. Leghorn eggs and day-old chicks for sale. The strain that weigh, lay, and pay. Also B. P. Rocks at farmers' prices. F. J. ARMSTRONG, Nevada, Ohio.

Runner Duck Eggs.—Fawn, white-egg strain, \$1 per 12 eggs. Single-comb R. I. Red eggs, and day-old chicks. Tompkins strain. SARAH WIDRIG, Rt. 29, Burt, N. Y.

Royal Blue Orpingtons, Nicholson strain. Blue Andalusians; also pure-white Indian Runner ducks, blue-ribbon winners. Eggs for sale. Write me for special prices and description.

H. R. ROHR, Buckhannon, W. Va.

MISCELLANEOUS

FOR SALE.—Dahlia roots, 2 cts. each and up—green flowering, and 100 other colors. Soy beans, Thornless raspberry. Circular free. JACOB McQUEEN, Baltic, Ohio.

Dasheen seed, \$4.00 per bushel, f. o. b. Tampa. Ten pounds, prepaid, \$1.00, to second zone of parcel post only; beyond that zone, send 80 cts. plus postage for ten pounds. THOS. PORTER & SONS, Rt. 3, Box 126, Ybor City Station, Tampa, Fla.

HELP WANTED

WANTED.—Young man of good habits to work with bees at once. State wages, age, and experience in first letter. M. C. SILSBEE, Rt. 3, Cohocton, N.Y.

WANTED.—Reliable man of good habits to work with bees the coming season. State age, experience, and wages first letter.

THE ROCKY MOUNTAIN BEE CO., Forsyth, Mont.

WANTED.—Man (married preferred) experienced in queen-raising; employment by the year on a salary and percentage.

OGDEN BEE AND HONEY CO., Ogden, Utah.

I want a good man to work with bees this season of about 3½ or 4 months, beginning May 1: wages \$60 per month; must be a queen-raiser also. A. J. SPURLIN, Rt. 6, Box 124, Bakersfield, Cal.

WANTED.—Man and wife—man to help with bees, and woman to cook and do housework for man, boy, and me; 350 hives run for comb honey. State wages wanted. HENRY HASTINGS, Kenton, Ohio.

WANTED.—A young man, with some experience, for season of 1914, to work in our honey-producing yards and queen-rearing department. Must be strictly temperate, industrious, and willing to work hard in the busy season. State age, experience, and wages expected, with board supplied, in first letter. Give reference.

THE LATSHAW HONEY CO., Carlisle, Ind.

BEEKEEPERS' DIRECTORY

If you need queens by return mail send to J. W. K. SHAW & Co., Loreauville, Iberia Parish, La.

Nutmeg Italian queens, leather color, after June 1, \$1.00 by return mail. A. W. YATES, Hartford, Ct.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

QUEENS.—Improved red-clover Italians bred for business, June 1 to Nov. 15, untested queens, 75c. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens, nuclei, colonies, and bees by the pound, ready in May. Our stock is northern-bred and hardy; five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices, send for circular.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices

The program for Canadian national field-day meet, to be held at the apiary of Mr. H. G. Sibbald, Forks of the Credit, Ont., is about completed.

Strong and representative committees have been appointed, and the enthusiastic reception given the movement has convinced those in charge that this event will be without a parallel in Canada, if not in the British Empire.

Almost without exception local associations have co-operated, and are sending large delegations. From as far away as British Columbia on the west and the maritime Provinces on the east have come greetings and wishes of success, while Nova Scotia will have an official on the grounds to see and report the meet.

The day will be celebrated, as last year, by basket picnics, and by practical demonstrations in the apiary. Wearisome lectures have been eliminated, and every-day methods will be used instead.

A large committee of ladies from the Peel and Halton, York, and the Toronto associations, will have charge of the basket-lunch counter, while at all the stations from Toronto to the Forks there will be a member of the committee on hand to inform and direct members and friends.

The railroad is placing special coaches on for the beekeepers. In every way possible the event is being studied by those in charge, so that when the 25th of May dawns the arrangements will be perfect, and the beekeepers from all over the country will find every thought anticipated.

The train will leave Toronto at 7:20 A. M., arriving at the Forks at 10:20, and leave the Forks at 6:30 P. M., arriving in the city at 9:30.

It remains for the rank and file to make this the largest and best field day ever held on earth. Let there be no drones. Come one, come all, and bring your baskets.

CHARLES E. HOPPER, Sec.

Toronto, Ont., March 21.

The twenty-third annual meeting of the Connecticut Beekeepers' Association will be held in the old Senate Chamber, State Capitol, Hartford, Ct., Saturday, April 18, 1914. Sessions 10:30 A. M. and 1:30 P. M. Election of officers and appointment of committees. Dr. Herbert E. Stockwell, of Stockbridge, Mass., ex-president of The Berkshire County Beekeepers' Association, will address us upon the subject, "The Theory and Significance of Immunity, i.e., of Resistance to Disease, as Applied to Bees." Dr. Stockwell comes to us well recommended as a fluent and forceful speaker, and we hope every member will make a special effort to hear him. Other features of the program are: How to save money in buying hives and fixtures. "Every man his own inspector, latest methods of treatment," with demonstrations by Inspector Yates. Inspector Coley will open discussion upon the subject. "Management of a comb-honey apiary to prevent swarming," by L. C. LeMay. Discussion, "Smoke Introduction of Queens," to be opened by Rev. D. D. Marsh. "Advantages of a Let-alone Hive, and how to Manage." Demonstration by Allen Latham. "Comparative merits of eight-frame and ten-frame hives for comb honey in locality of Connecticut." A. W. Coley. Please bring for display and demonstration any invention, implement, or method you may have. Space and tables will be provided for the same. A special invitation is extended to fruit-growers to attend. The question-box will be free to all.

L. WAYNE ADAMS, Sec.
15 Warner St., Hartford, Ct.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER

SWEET-CLOVER SEED.

Since we last reported we have received a shipment of choice hulled white seed from Nevada, and two lots of unhulled white—one from Virginia, the other from Ohio—both good seed. We report no change in prices from the last quoted.

BEESEX WANTED.

It takes a lot of beeswax to keep our wax-room supplied these days. We will pay as much as you can get for it anywhere else, and we ask you to send forward any lots which you may have accumulated. See advertisement on another page.

SEED BUCKWHEAT.

We should like to hear from any of our readers who have for sale either Japanese or silverhull buckwheat seed. Submit a sample, and name the price per 100 pounds which you are asking for it. It is still early for buckwheat, but our stock of seed is limited, and we desire to get in touch with a further supply before the season for it is here.

SPECIAL NOTICES

A. I. ROOT

CASSAVA CUTTINGS.

Since our article in regard to the value of cassava for pigs and chickens, there have been requests to know where the cuttings can be procured. By the way of answer we give below an advertisement clipped from the *Florida Grower* of March 14. The price is surely low enough, and, without doubt, small lots could be sent by parcel post.

Cassava Cuttings—\$2 per 1000, f. o. b. R. Addison, Loughman, Fla.

ORDER OF THE POSTMASTER-GENERAL; RATES OF POSTAGE ON SEEDS, ETC.

Office of the Postmaster General,
Washington, March 13, 1914.

Order No. 7880.

Section 457, Postal Laws and Regulations, edition of 1913, is amended to read as follows:

1. Seeds, cuttings, bulbs, roots, scions, and plants, shall hereafter be embraced in and carried as fourth-class matter, and for the same rates of postage. (Act of March 9, 1914.)

2. The rate of postage on parcels of seeds, cuttings, bulbs, roots, scions, and plants, weighing four ounces or less, is one cent for each ounce or fraction thereof, regardless of distance; on parcels weighing more than four ounces the pound rates shown in paragraph 1, Section 456, apply. These rates apply whether the articles are for planting or other purposes.

See Section 469 as to preparation of seeds, etc., for mailing.

A. S. BURLESON, Postmaster-General.

ELECTRO-GALVANIC FINGER-RINGS; A COMPANION TO ELECTROPOISE.

Mr. A. I. Root:—I inclose a clipping from the *San Antonio Express*. What is your opinion of those electro-galvanic rings? If you see fit, give us your opinion in GLEANINGS.

Fort McKavett, Texas, Jan. 14.

J. A. RUFF.

Afflicted people, take notice.—Most important discovery of modern times. Electro-galvanic rings. A drugless and harmless remedy. Guaranteed for rheumatism, neuralgia, aches, pains, indigestion, female troubles, eczema, nervousness, stomach, bowel, kidney trouble. Composed of electro positive and negative metals. When worn on the finger, produces a mild current of electricity through the body, which purifies the blood, strengthens the nerves and muscles, induces sweet, refreshing sleep, improves the appetite, and expels disease from the body. Write for full particulars explaining the manner in which nitrogen and oxygen are produced from copper and zinc, and converted into electricity. How electricity and carbon gases affect the human system, one to perpetuate, the other to destroy and decay, accounting for the presence of life and death in the body.

Did you ever? Mrs. Root says not one in 10,000 would ever be taken in by such "guff;" but I do not feel so sure about it. Our older readers will recall we have several times, in years past, shown up these "rings."

A "KIND WORD" AND SOMETHING ELSE.

Dear Friend:—Knowing of your great interest in the cause of temperance I take pleasure in mailing to you a copy of the *Temperance Instructor*. This magazine so thoroughly exposes the liquor-traffic in every phase of its work that it can not fail to win thousands away from its support, bondage, and destruction. Now, I trust you will help us to place this little magazine in the homes of the people. Liberal discounts given if ordered in quantities. Write the publishers for terms.

We have been subscribers to GLEANINGS for several years, and greatly enjoy our Homes; and the author, as addressed above, seems like a "dear old friend," and, together with that "dear good wife," we wish for them the richest of God's blessings.

Cuttingsville, Vt., Feb. 22. Mrs. O. E. LEWIS.

[The beautiful finely illustrated magazine mentioned above is the finest thing altogether I have ever got hold of on the subject of temperance. Every child will doubtless look it through, and quite likely read it through. I wonder the Anti-saloon League and the W. C. T. U. have not called attention to it. As I take it, this is a special temperance issue of the *Youth's Instructor*. The price of this one number is 10 cts., and much less by the hundred copies. It seems the *Youth's Instructor* has been published sixty years; but all I can find in this issue regarding terms, etc., is as follows: *The Youth's Instructor*, issued Tuesdays by the Review and Herald Publishing Association, Takoma Park Station, Washington, D. C. Fannie Dickerson Chase, Editor.]

Honey - Cans

We have made especial efforts this season to supply our patrons with cans and cases of the finest quality, and we have now in our warehouse a complete stock ready for immediate shipment to you.

There is much satisfaction in knowing that there is a dependable source of supply so near to all Texas Beekeepers, and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet failed to fall down at a critical time. Sometimes we feel that it is not wise for Beekeepers to trust entirely to the supply house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when you are ready we are. Write us for prices.

Weed's New Process Comb Foundation

We have made extensive improvements in our comb-foundation factory this season at a great expense, and are now operating day and night under the supervision of a man direct from the A. I. Root Company, who has had many years of experience in the manufacture of this product. When placing your order with us you are assured of receiving Comb Foundation of unexcelled quality.

A full line of Root's Beekeepers' Supplies on hand at all times ready for immediate shipment.

Toepperwein & Mayfield
Nolan and Cherry Sts. San Antonio, Texas

POLLYANNA THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision;" illustrated, cloth-bound, \$1.40 postpaid.

"Enter Pollyanna. She is the most irresistible maid you have met in all your journeyings through Bookland. She is so real that you forget that she is a story girl. After the first introduction you will feel that the inner circle of your friends has admitted a new member. A brave, winsome, modern American girl, Pollyanna walks into print to take her place in the hearts of all members of the family."

Twelfth Printing

Read some of the press comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—*Passaic Daily News*.

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by the story."—*The Boston Journal*.

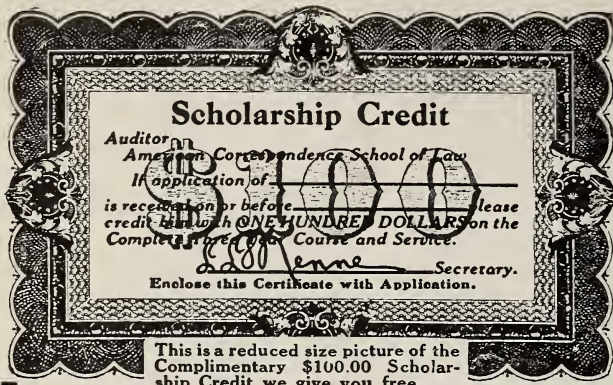
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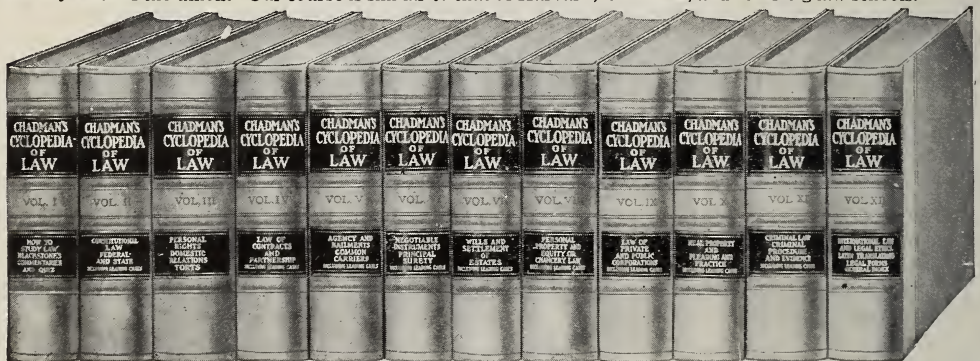
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